BK	NUM	ANS	QUESTION	ANSWER A	ANSWER B	ANSWER C	ANSWER D	ILLUST
3	458	A	The prevailing westerlies of the Southern Hemisphere blow 18 - 30 knots _____.	all year long	during the summer months only	during the winter only	during spring only	
3	459	D	A buoy bears 178°T at 3000 yards (2700 meters). What is the course to make good to leave the buoy 100 yards (90 meters) to port?	174°T	176°T	178°T	180°T	
3	460	D	When using horizontal sextant angles of three objects to fix your position, an indeterminate position will result in which situation?	The objects lie in a straight line.	The vessel is inside of a triangle formed by the objects.	The vessel is outside of a triangle formed by the objects.	A circle will pass through your position and the three objects.	
3	461	A	Under the U.S. Aids to Navigation System, a yellow buoy may _____.	mark a fish net area	be lighted with a white light	show a fixed red light	All of the above	
3	462	A	For what purpose would using a Lambert conformal chart be more convenient than using a Mercator?	Plotting radio bearings over a long distance	Determining latitude and longitude of a fix	Measuring rhumb line distances	Measuring rhumb line directions	
3	464	C	Prior to reading an aneroid barometer, you should tap the face lightly with your finger to _____.	expose any loose connections	demagnetize the metal elements	bring the pointer to its true position	contract and expand the glass face	
3	465	B	When applying a dip correction to the sighted sextant angle (hs), you always subtract the dip because you are correcting _____.	hs to the visible horizon	hs to the sensible horizon	hs to the celestial horizon	Ho to the celestial horizon	
3	466	C	In the relatively calm area near the hurricane center, the seas are _____.	moderate but easily navigated	calm	mountainous and confused	mountainous but fairly regular as far as direction is concerned	
3	467	C	At what time after 1400 EST (ZD +5), on 4 January 1983, will the height of the tide at Port Wentworth, GA, be 3.0 feet?	1612	1630	1653	1718	
3	469	C	Where are the prevailing westerlies of the Southern Hemisphere located?	Between the Equator and 10° latitude	Between 10° and 20° latitude	Between 30° and 60° latitude	Between 60° and 90° latitude	
3	470	C	You are underway on course 120°T and can make 12 knots. The eye of a hurricane bears 150°T at 120 miles. The hurricane is on course 295° at 20 knots. What course should you steer at 12 knots to have the maximum CPA?	312°	330°	348°	001°	
3	471	A	Yellow lights may appear on _____.	special purpose buoys	vertically-striped buoys	horizontally-banded buoys	spherical buoys	
3	472	B	Which conic projection chart features straight lines which closely approximate a great circle?	Polyconic	Lambert conformal	Orthographic	Stereographic	

3	474	B	Which indication on the barometer is most meaningful in forecasting weather?	The words "Fair -- Change -- Rain"	The direction and rate of change of barometric pressure	The actual barometric pressure	The relative humidity	
3	475	B	A correction for augmentation is included in the Nautical Almanac corrections for _____.	the Sun	the Moon	Venus	None of the above	
3	476	A	Tropical cyclones normally form within which of the following belts of latitude?	5° to 15°	15° to 30°	30° to 45°	45° to 60°	
3	477	C	Determine the height of the tide at 1430 EST (ZD +5) at New Bedford, MA, on 10 April 1983.	1.1 feet	1.2 feet	1.4 feet	1.7 feet	
3	478	D	The velocity of the apparent wind can be more than the true wind, and come from the same direction, if certain conditions are present. One condition is that the _____.	ship's speed must be less than the true wind velocity	true wind must be from dead astern	true wind velocity must be faster than the ship's speed	true wind must be from dead ahead	
3	481	A	A special mark (yellow buoy), if lighted, may exhibit which light rhythm?	Flashing	Morse "A"	Equal interval	Occulting	
3	482	D	Which statement about a gnomonic chart is correct?	A rhumb line appears as a straight line.	Distance is measured at the mid-latitude of the track line.	Meridians appear as curved lines converging toward the nearer pole.	Parallels, except the equator, appear as curved lines.	
3	483	A	Coral atolls, or a chain of islands at right angles to the radar beam, may show as a long line rather than as individual targets due to _____.	the effects of beam width	limitations on range resolution	the pulse length of the radar	the multiple-target resolution factor	
3	484	A	The needle of an aneroid barometer points to 30.05 on the dial. This indicates that the barometric pressure is _____.	30.05 inches of mercury	30.05 millimeters of mercury	30.05 millibars	falling	
3	485	C	A phase correction is applied to observations of _____.	the Sun	stars	planets	All of the above	
3	486	D	Tropical cyclones do not form within 5° of the Equator because _____.	there are no fronts in that area	it is too hot	it is too humid	of negligible Coriolis force	
3	487	D	What will be the time after 0600 (ZD +3), on 6 March 1983, that the height of the tide at Puerto Rosales, Argentina, will be 9.0 feet (2.7 meters)?	0740	0754	0840	0922	
3	1	B	Unlighted, red and green, horizontally-banded buoys with the topmost band red _____.	are cylindrical in shape and called can buoys	are conical in shape and called nun buoys	may either be cylindrical or conical since the shape has no significance	are triangular in shape to indicate that it may not be possible to pass on either side of the buoy	

3	2	D	On an isomagnetic chart, the line of zero variation is the _____.	zero variation line	isogonic line	variation line	agonic line	
3	3	C	Blinking of a Loran-C signal indicates _____.	the signal is in proper sequence	there will be no increase or decrease in kHz	there is an error in the transmission of that signal	that it has the proper GRI	
3	4	B	Gyrocompass repeaters reproduce the indications of the master gyrocompass. They are _____.	accurate only in the Polar regions	accurate electronic servomechanisms	hand operated	accurate only if the vessel is underway	
3	5	B	A vessel is steaming in east longitude on January 25 and crosses the International Date Line on an eastbound course at 0900 zone time. What is the date and time at Greenwich when the vessel crosses the line?	0900, 24 January	2100, 24 January	2100, 25 January	0900, 26 January	
3	6	B	Wind velocity varies _____.	directly with the temperature of the air mass	directly with the pressure gradient	inversely with the barometric pressure	inversely with the absolute humidity	
3	7	C	The period at high or low tide during which there is no change in the height of the water is called the _____.	range of the tide	plane of the tide	stand of the tide	reversing of the tide	
3	8	C	When you are steering on a pair of range lights and find the upper light is above the lower light you should _____.	come left	come right	continue on the present course	wait until the lights are no longer in a vertical line	
3	9	A	When displayed under a single-span fixed bridge, red lights indicate _____.	the channel boundaries	that vessels must stop	the bridge is about to open	that traffic is approaching from the other side	
3	10	A	The wind at Frying Pan shoals has been northwesterly at an average velocity of 22 knots. The predicted set and drift of the rotary current are 125° at 0.6 knot. What current should you expect?	119° at 0.9 knot	172° at 1.1 knots	225° at 0.6 knot	340° at 0.4 knot	
3	11	B	A buoy having red and green horizontal bands would have a light characteristic of _____.	interrupted quick flashing	composite group flashing	Morse (A)	quick flashing	
3	12	D	Lines on a chart which connect points of equal magnetic variation are called _____.	magnetic latitudes	magnetic declinations	dip	isogonic lines	
3	13	B	Most modern Loran-C receivers, when not tracking properly, have a(n) _____.	bell alarm to warn the user	lighted alarm signal to warn the user	alternate signal keying system	view finder for each station	
3	14	A	You have replaced the chart paper in the course recorder. What is NOT required to ensure that a correct trace is recorded?	Test the electrical gain to the thermograph pens	Set the zone pen on the correct quadrant	Line the course pen up on the exact heading of the ship	Adjust the chart paper to indicate the correct time	
3	15	C	What is the length of a nautical mile?	1,800 meters	2,000 yards	6,076 feet	5,280 feet	

3	16	C	The direction of the surface wind is _____.	directly from high pressure toward low pressure	directly from low pressure toward high pressure	from high pressure toward low pressure deflected by the earth's rotation	from low pressure toward high pressure deflected by the earth's rotation	
3	17	A	"Stand" of the tide is that time when _____.	the vertical rise or fall of the tide has stopped	slack water occurs	tidal current is at a maximum	the actual depth of the water equals the charted depth	
3	18	B	A vessel's position should be plotted using bearings of _____.	buoys close at hand	fixed known objects on shore	buoys at a distance	All of the above	
3	19	D	You are approaching a swing bridge at night. You will know that the bridge is open for river traffic when _____.	the fixed, green light starts to flash	the amber light changes to green	the red light is extinguished	the red light changes to green	
3	20	A	You are underway on course 050°T and your maximum speed is 12 knots. The eye of a hurricane bears 120°T, 110 miles from your position. The hurricane is moving towards 285°T at 25 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?	77 miles	82 miles	87 miles	93 miles	
3	21	B	Which buoy is NOT numbered?	Green can buoy	Preferred-channel buoy	Red lighted buoy	Green gong buoy	
3	22	A	Charts showing the coast of Mexico are produced by the United States _____.	National Geospatial-Intelligence Agency	Coast Guard	Naval Observatory	National Ocean Service	
3	23	A	If Loran-C signals become unsynchronized, the receiver operator is warned because _____.	signals begin to blink	signals begin to shift	stations discontinue transmission	stations transmit grass	
3	25	A	You are in LONG 144°E. The date is 6 February, and the zone time is 0800. The Greenwich date and time are _____.	2200, 5 February	2300, 5 February	1700, 6 February	1800, 6 February	
3	26	D	Wind direction may be determined by observing all of the following EXCEPT _____.	low clouds	waves	whitecaps	swells	
3	27	A	Spring tides are tides that _____.	have lows lower than normal and highs higher than normal	have lows higher than normal and highs lower than normal	are unpredictable	occur in the spring of the year	
3	28	C	When using a buoy as an aid to navigation which of the following should be considered?	The buoy should be considered to always be in the charted location.	If the light is flashing, the buoy should be considered to be in the charted location.	The buoy may not be in the charted position.	The buoy should be considered to be in the charted position if it has been freshly painted.	

3	29	C	You are approaching a multiple-span bridge at night. The main navigational channel span will be indicated by _____.	a quick flashing red or green aid to navigation	a steady blue light in the center of the span	3 white lights in a vertical line in the center of the span	a flashing green light in the center of the span	
3	30	A	When taking an amplitude, the Sun's center should be observed on the visible horizon when _____.	in high latitudes	the Sun is near or at a solstice	the declination is of a different name from the latitude	the Sun's declination is at or near 0°	
3	31	A	When approaching a preferred-channel buoy, the best channel is NOT indicated by the _____.	light characteristic	color of the uppermost band	shape of an unlighted buoy	color of the light	
3	32	B	The datum used for soundings on charts of the Atlantic Coast of the United States is mean _____.	low water	lower low water	higher high water	high water	
3	34	B	The Local Notice to Mariners is usually published _____.	daily	weekly	monthly	semiannually	
3	35	D	You are on a vessel at 0400 ZT on 3 July, and the ZD for your position is -8. What is the GMT?	1200, 3 July	2000, 3 July	1200, 2 July	2000, 2 July	
3	37	B	What does the term "tide" refer to?	Horizontal movement of the water	Vertical movement of the water	Mixing tendency of the water	Salinity content of the water	
3	38	D	When navigating a vessel, you _____.	can always rely on a buoy to be on station	can always rely on a buoy to show proper light characteristics	should assume a wreck buoy is directly over the wreck	should never rely on a floating aid to maintain its exact position	
3	39	A	Civil twilight begins at 1910 zone time on 20 July 1981. Your DR position at that time is LAT 22°16'N, LONG 150°06'W. Which statement concerning the planets available for evening sights is TRUE?	Venus will have a westerly meridian angle.	Mars will set about one hour after the Sun sets.	Mars, Venus, Jupiter, and Saturn will be above the horizon.	Sights of Saturn, Jupiter, and Venus will yield a good three-line-of-position fix.	
3	40	C	The predicted time that the flood begins at the entrance to Delaware Bay is 1526. You are anchored off Chestnut St. in Philadelphia. If you get underway bound for sea at 1600 and turn for 8 knots, at what point will you lose the ebb current?	Billingsport	Marcus Hook	Mile 63	Mile 52	
3	41	B	Mean high water is the reference plane used for _____.	all vertical measurements	heights above water of land features such as lights	soundings on the East and West Coasts	water depths on the East Coast only	
3	42	C	The datum used for soundings on charts of the East Coast of the United States is _____.	mean low water springs	mean low water	mean lower low water	half tide level	
3	43	C	A buoy with a composite group-flashing light indicates a(n) _____.	anchorage area	fish net area	bifurcation	dredging area	

3	44	A	The speed of sound through ocean water is nearly always _____.	faster than the speed of calibration for the fathometer	the same speed as the speed of calibration for the fathometer	slower than the speed of calibration for the fathometer	faster than the speed of calibration for the fathometer, unless the water is very warm	
3	45	A	The navigator aboard a ship at approximately 165°E longitude observes the Sun at ZT 14-25-04 on 21 September. What is the GMT and Greenwich date of the observation?	03-25-04, 21 September	02-25-04, 21 September	01-25-04, 21 September	01-25-04, 20 September	
3	46	A	What wind reverses directions seasonally?	Monsoon winds	Hooked trades	Jet stream	Secondary winds	
3	47	C	The range of tide is the _____.	distance the tide moves out from the shore	duration of time between high and low tide	difference between the heights of high and low tide	maximum depth of the water at high tide	
3	48	D	When should a navigator rely on the position of floating aids to navigation?	During calm weather only	During daylight only	Only when inside a harbor	Only when fixed aids are not available	
3	49	A	While steering a course of 150°T, you wish to observe a body for a latitude check. What would the azimuth have to be?	000°T	090°T	150°T	240°T	
3	50	B	The difference between the heights of low and high tide is the _____.	period	range	distance	depth	
3	51	D	In the U.S. Aids to Navigation System, red and green horizontally-banded buoys mark _____.	channels for shallow draft vessels	general anchorage areas	fishing grounds	junctions or bifurcations	
3	52	B	The reference datum used in determining the heights of land features on most charts is _____.	mean sea level	mean high water	mean low water	half-tide level	
3	55	D	Your longitude is 179°59'W. The LMT at this longitude is 23h 56m on the 4th day of the month. Six minutes later, your position is 179°59'E longitude. Your LMT and date are _____.	00h 02m on the 4th	00h 02m on the 5th	23h 50m on the 5th	00h 02m on the 6th	
3	56	A	A strong, often violent, northerly wind occurring on the Pacific coast of Mexico, particularly during the colder months, is called _____.	Tehuantepecer	Papagayo	Norther	Pampero	
3	57	B	The height of tide is the _____.	depth of water at a specific time due to tidal effect	difference between the depth of the water and the area's tidal datum	difference between the depth of the water and the high water tidal level	difference between the depth of the water at high tide and the depth of the water at low tide	

3	58	D	You should plot your dead reckoning position _____.	at every course change	hourly	at every speed change	All of the above are correct.	
3	59	D	For navigational purposes, each great circle on the Earth has a length of _____.	3,600 miles	5,400 miles	12,500 miles	21,600 miles	
3	60	A	The predicted time that the ebb begins at the entrance to Delaware Bay is 1526. You are anchored off Chestnut St. in Philadelphia. If you get underway bound for sea at 1630 and turn for 12 knots, at what point will you lose the flood current?	New Castle	Reedy Island	Mile 44	Ship John Shoal Lt.	
3	61	A	Red lights may appear on _____.	horizontally banded buoys	vertically striped buoys	yellow buoys	spherical buoys	
3	62	B	Charted depth is the _____.	vertical distance from the chart sounding datum to the ocean bottom, plus the height of tide	vertical distance from the chart sounding datum to the ocean bottom	average height of water over a specified period of time	average height of all low waters at a place	
3	63	D	A "full service" Loran-C receiver will provide _____.	matching pulse rates of at least 20 stations	an automatic on-and-off switch	a horizontal matching of all delayed hyperbolic signals	automatic signal acquisition and cycle matching	
3	64	C	Mean lower low water is the reference plane used for _____.	all vertical measurements	heights above water for lights, mountains, etc.	soundings on the U.S. east and west coasts	water depths on the U.S. east coast only	
3	65	C	The LMT of LAN is 1210. Your longitude is 70°30'E. Which time would you use to enter the Nautical Almanac to determine the declination of the Sun at LAN?	1842	1652	0728	0652	
3	66	A	What will a veering wind do?	Change direction in a clockwise manner in the Northern Hemisphere	Circulate about a low pressure center in a counterclockwise manner in the Northern Hemisphere	Vary in strength constantly and unpredictably	Circulate about a high pressure center in a clockwise manner in the Southern Hemisphere	
3	67	A	What is the definition of height of tide?	The vertical distance from the tidal datum to the level of the water at any time	The vertical difference between the heights of low and high water	The vertical difference between a datum plane and the ocean bottom	The vertical distance from the surface of the water to the ocean floor	

3	68	D	A position obtained by taking lines of position from one object at different times and advancing them to a common time is a(n) _____.	dead-reckoning position	estimated position	fix	running fix	
3	69	A	The parallax angle will vary the most with the time of year for _____.	Venus	Jupiter	Saturn	Polaris	
3	70	C	The station located at "A" is the _____.	on station	off station	master station	secondary station	D001NG
3	71	A	A preferred-channel buoy may be _____.	lettered	spherical	showing a white light	All of the above	
3	72	B	The datum from which the predicted heights of tides are reckoned in the tide tables is _____.	mean low water	the same as that used for the charts of the locality	the highest possible level	given in table three of the tide tables	
3	74	D	When operated over a muddy bottom, a fathometer may indicate _____.	a shallow depth reading	a zero depth reading	no depth reading	two depth readings	
3	75	A	The Local mean time of LAN is 1152. Your longitude is 73°15'E. What time would you use to enter the Nautical Almanac to determine the declination of the Sun at LAN?	0659	0652	1859	1852	
3	76	B	In the Northern Hemisphere, a wind that shifts counterclockwise is a _____.	veering wind	backing wind	reverse wind	chinook wind	
3	77	B	When there are small differences between the heights of two successive high tides or two low tides, in a tidal day, the tides are called _____.	diurnal	semidiurnal	solar	mixed	
3	78	B	A single line of position combined with a dead-reckoning position results in a(n) _____.	assumed position	estimated position	fix	running fix	
3	79	B	The rate of increase in hour angle is the slowest for _____.	the Sun	the Moon	Mars	Mercury	
3	80	C	When the moon is at first quarter or third quarter phase, what type of tides will occur?	Apogean	Perigean	Neap	Spring	
3	81	A	A buoy with a composite group-flashing light indicates a(n) _____.	bifurcation	fish net area	anchorage area	dredging area	
3	82	D	On the west coast of North America, charted depths are taken from _____.	high water	mean tide level	mean low water	mean lower low water	
3	83	B	All Loran-C transmitting stations are equipped with cesium frequency standards which permit _____.	every station in one chain to transmit at the same time	each station to transmit without reference to another station	on-line transmission of single-line transmitters at the same time	each station to only depend on the master for synchronization and signal ratio	

3	84	A	When using an echo sounder in deep water, it is NOT unusual to _____.	receive a strong return at about 200 fathoms (366 meters) during the day, and one nearer the surface at night	receive a first return near the surface during the day, and a strong return at about 200 fathoms (366 meters) at night	receive false echoes at a constant depth day and night	have to recalibrate every couple of days due to inaccurate readings	
3	85	D	Your longitude is 179°59'W. The LMT at this longitude is 23h 56m of the 4th day of the month. Six minutes later your position is 179°59'E longitude. Your LMT and date is now _____.	00h 02m on the 4th	00h 02m on the 5th	23h 50m on the 5th	00h 02m on the 6th	
3	86	B	A weather forecast states that the wind will commence backing. In the Northern Hemisphere, this would indicate that it will _____.	shift in a clockwise manner	shift in a counterclockwise manner	continue blowing from the same direction	decrease in velocity	
3	87	A	A tide is called diurnal when _____.	only one high and one low water occur during a lunar day	the high tide is higher and the low tide is lower than usual	the high tide and low tide are exactly six hours apart	two high tides occur during a lunar day	
3	88	C	Which position includes the effects of wind and current?	Dead reckoning position	Leeway position	Estimated position	Set position	
3	89	B	The GHA of the first point of Aries is 315° and the GHA of a planet is 150°. What is the right ascension of the planet?	7 hours	11 hours	19 hours	23 hours	
3	90	B	When the moon is new or full, which type of tides occur?	Neap	Spring	Diurnal	Apogean	
3	91	D	A preferred-channel buoy will show a _____.	white light whose characteristic is Morse (A)	group-occulting white light	composite group-flashing (2 + 1) white light	composite group-flashing (2 + 1) red or green light	
3	92	C	When utilizing a Pacific Coast chart, the reference plane of soundings is _____.	mean low water springs	mean low water	mean lower low water	lowest normal low water	
3	93	A	The time interval between the transmission of signals from a pair of Loran-C stations is very closely controlled and operates with _____.	an atomic time standard	Daylight Savings Time	Eastern Standard Time	Greenwich Mean Time	
3	94	A	When using a recording depth finder in the open ocean, what phenomena is most likely to produce a continuous trace that may not be from the actual ocean bottom?	Echoes from a deep scattering layer	Echoes from schools of fish	Multiple returns reflected from the bottom to the surface and to the bottom again	Poor placement of the transducer on the hull	

3	95	C	The difference in local time between an observer on 114°W and one on 119°W is _____.	1.25 minutes	5 minutes	20 minutes	75 minutes	
3	96	A	A weather forecast states that the wind will commence veering. In the Northern Hemisphere this indicates that the wind will _____.	shift in a clockwise manner	shift in a counterclockwise manner	continue blowing from the same direction	increase in velocity	
3	97	B	The lunar or tidal day is _____.	about 50 minutes shorter than the solar day	about 50 minutes longer than the solar day	about 10 minutes longer than the solar day	the same length as the solar day	
3	98	B	A position that is obtained by applying estimated current and wind to your vessel's course and speed is a(n) _____.	dead reckoning position	estimated position	fix	None of the above	
3	99	B	You are enroute to Jacksonville, FL, from San Juan, P.R. There is a fresh N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	smoother seas and warmer water	steeper waves, closer together	long swells	cirrus clouds	
3	100	B	You are underway on course 050°T and your maximum speed is 12 knots. The eye of a hurricane bears 080°T, 100 miles from your position. The hurricane is moving towards 265°T at 22 knots. What course should you steer at 12 knots to have the maximum CPA?	219°	208°	199°	190°	
3	101	C	A lighted preferred-channel buoy may show a _____.	fixed red light	Morse (A) white light	composite group-flashing light	yellow light	
3	102	C	Which statement about an NGA (NIMA) chart with stock no.23BHA23433 is TRUE?	This is a non-navigational or special purpose chart.	It is not included in the portfolio.	It is a chart of an area in subregion 23.	It depicts a major portion of an ocean.	
3	103	B	In Loran-C the high accuracy of atomic time and frequency controls allows each station to operate _____.	at higher frequencies	on schedule, independently	at 1,975 kHz	in a multiplex phase	
3	104	B	What should you apply to a fathometer reading to determine the depth of water?	Subtract the draft of the vessel.	Add the draft of the vessel.	Subtract the sea water correction .	Add the sea water correction.	
3	105	D	If the GMT is 1500, the time at 75°E longitude is _____.	1000	1500	1700	2000	
3	106	D	A local wind which occurs during the daytime and is caused by the different rates of warming of land and water is a _____.	foehn	chinook	land breeze	sea breeze	
3	107	D	The average height of the surface of the sea for all stages of the tide over a 19 year period is called _____.	mean high water	mean low water	half-tide level	mean sea level	

3	108	C	A position that is obtained by using two or more intersecting lines of position taken at nearly the same time, is a(n) _____.	dead-reckoning position	estimated position	fix	running fix	
3	109	C	While proceeding along the Norwegian coast on course 039°T, you sight the black-yellow-black banded buoy shown bearing 053°T. What action should you take?	Alter course to 053° and leave the buoy close aboard on either side	Maintain course	Alter course to 060° and ensure that the true bearings decreases	Alter course to port to rapidly open the bearing to the right	D021NG
3	110	C	A millibar is a unit of _____.	humidity	precipitation	pressure	temperature	
3	111	A	Green lights may appear on _____.	horizontally banded buoys	vertically striped buoys	yellow buoys	spherical buoys	
3	112	D	Which chart number indicates an NGA (NIMA) chart designed for inshore coastwise navigation?	LCORR5868	COMBT800564	17XHA17365	16ACO16595	
3	113	C	The type of transmission used in Loran-C is a _____.	single pulse	wide pulse	multipulse	narrow pulse	
3	114	B	All echo-sounders can measure the _____.	actual depth of water	actual depth of water below keel	average depth from waterline to hard bottom	average depth of water to soft bottom	
3	115	B	The date is the same all over the world at _____.	0000 GMT	1200 GMT	0000 LMT for an observer at 90°E longitude	no time	
3	116	C	Which wind results from a land mass cooling more quickly at night than an adjacent water area?	Coastal breeze	Sea breeze	Land breeze	Mistral	
3	117	D	Mean high water is the average height of _____.	the higher high waters	the lower high waters	the lower of the two daily tides	all high waters	
3	118	C	What describes an accurate position that is NOT based on any prior position?	Dead-reckoning position	Estimated position	Fix	Running fix	
3	119	C	While proceeding along the Mediterranean coast of Spain, you sight the black and yellow buoy shown. Your course is 039°T, and the buoy bears 053°T. What action should you take?	Alter course to 053°T and pass the buoy close aboard on either side	Alter course to 060° and ensure that the bearings decrease	Maintain course and ensure that the bearings increase	Alter course towards the buoy and leave the buoy well clear on either side	D020NG
3	120	A	You are underway on course 050°T and your maximum speed is 13 knots. The eye of a hurricane bears 100°T, 120 miles from your position. The hurricane is moving towards 275°T at 25 knots. If you maneuver at 13 knots to avoid the hurricane, what could be the maximum CPA?	72 miles	78 miles	83 miles	89 miles	
3	121	D	A safe water mark may be _____.	vertically striped	spherical	showing a white light	All of the above	

3	122	A	The subregions of the United States Gulf and East Coasts are numbered 11, 12 and 13 within the chart numbering system. Which chart number indicates a chart for either the Gulf or East Coast?	11250	18411	21228	17136	
3	123	A	If the radio signal ground wave extends out for less distance than the minimum skywave distance, there is an area in which no signal is received. This is called the _____.	skip zone	blackout zone	diffraction zone	shadow zone	
3	124	B	An electronic depth finder operates on the principle that _____.	radio signals reflect from a solid surface	sound waves travel at a constant speed through water	radar signals travel at a constant speed through water	pressure increases with depth	
3	125	B	The GMT is 0445 and your zone description is +1. Your zone time is _____.	0445	0345	0545	1545	
3	126	C	A katabatic wind blows _____.	up an incline due to surface heating	in a circular pattern	down an incline due to cooling of the air	horizontally between a high and a low pressure area	
3	127	C	Mean low water is the average height of _____.	the surface of the sea	high waters and low waters	all low waters	the lower of the two daily low tides	
3	128	A	A position obtained by applying only your vessel's course and speed to a known position is a _____.	dead-reckoning position	fix	probable position	running fix	
3	129	B	In working out a local apparent noon sight for your latitude, you subtract the Ho from 90°. The 90° represents the angular distance from _____.	the equator to the elevated pole	your horizon to your zenith	your zenith to the elevated pole	the geographical position of the Sun to the elevated pole	
3	130	B	The distance between the surface of the water and the tidal datum is the _____.	range of tide	height of tide	charted depth	actual water depth	
3	131	D	A vertically-striped buoy may be _____.	striped black and green	striped black and yellow	lighted with a red light	lighted with a white light	
3	132	B	The value of sixty nautical miles per degree of geodetic latitude is most correct at _____.	the equator	latitude 45°	the poles	all latitudes	
3	133	B	The line connecting the Loran-C master station with a secondary station is called the _____.	focus line	base line	side line	center line	
3	134	B	The recording fathometer produces a graphic record of the _____.	bottom contour only up to depths of 100 fathoms	depth underneath the keel against a time base	contour of the bottom against a distance base	depth of water against a distance base	
3	135	C	The standard meridian for the time zone +1 is _____.	0°	7 1/2°W	15°W	7 1/2°E	

3	136	C	Which Beaufort force indicates a wind speed of 65 knots?	Beaufort force 0	Beaufort force 6.5	Beaufort force 12	Beaufort force 15	
3	137	D	Priming of the tides occurs _____.	at times of new and full Moon	when the Earth, Moon, and Sun are lying approximately on the same line	when the Moon is between first quarter and full and between third quarter and new	when the Moon is between new and first quarter and between full and third quarter	
3	138	B	The path that a vessel is expected to follow, represented on a chart by a line drawn from the point of departure to the point of arrival, is the _____.	DR plot	track line	heading	estimated course	
3	139	C	What is the geographic longitude of a body whose GHA is 215°15'?	35°15'W	35°15'E	144°45'E	144°45'W	
3	140	C	You are underway on course 050°T and your maximum speed is 12 knots. The eye of a hurricane bears 080°T, 100 miles from your position. The hurricane is moving towards 265°T at 22 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?	76 miles	69 miles	63 miles	56 miles	
3	141	C	You are enroute to assist vessel A. Vessel A is underway at 6 knots on course 133°T, and bears 042°T, 105 miles from you. What is the time to intercept if you make 10 knots?	12h 30m	12h 44m	12h 58m	13h 22m	
3	142	B	Which nautical charts are intended for coastwise navigation outside of outlying reefs and shoals?	Approach charts	General charts	Sailing charts	Coastal charts	
3	143	D	Under the IALA - A Buoyage System, a buoy used as a port hand mark would not show which light characteristic?	Isophase	Quick flashing	Long flashing	Group Flashing (2 + 1)	
3	144	B	In modern fathometers the sonic or ultrasonic sound waves are produced electrically by means of a(n) _____.	transmitter	transducer	transceiver	amplifier	
3	145	D	The standard time meridian for zone description -1 is _____.	0°	7 1/2°W	7 1/2°E	15°E	
3	146	A	What change in the wind direction could be expected at position "D" if the low were moving northeasterly?	Veering to the west	Backing to the north	Veering to the north	Backing to the east	D049NG

3	147	C	Which statement is TRUE concerning equatorial tides?	They occur when the Sun is at minimum declination north or south.	They occur when the Moon is at maximum declination north or south.	The difference in height between consecutive high or low tides is at a minimum.	They are used as the basis for the vulgar establishment of the port.	
3	148	B	When possible, a DR plot should always be started from where?	Any position	A known position	An assumed position	None of the above	
3	149	B	You are underway on course 050°T and your maximum speed is 13 knots. The eye of a hurricane bears 100°T, 120 miles from your position. The hurricane is moving towards 275°T at 25 knots. What course should you steer at 13 knots to have the maximum CPA?	339°	333°	326°	320°	
3	150	B	An alternating light _____.	shows a light with varying lengths of the lighted period	shows a light that changes color	marks an alternate lesser-used channel	is used as a replacement for another light	
3	151	B	Under the U.S. Aids to Navigation System, spherical buoys may be _____.	numbered	lettered	lighted	All of the above	
3	152	B	A chart with a natural scale of 1:160,000 is classified as a _____.	sailing chart	general chart	coast chart	harbor chart	
3	153	C	The line extending beyond the stations at A and B is referred to as the _____.	slave line	zero line	baseline extension	centerline	D004NG
3	154	D	Which factor has the greatest effect on the amount of gain required to obtain a fathometer reading?	Salinity of water	Temperature of water	Atmospheric pressure	Type of bottom	
3	155	A	The velocity of the current in large coastal harbors is _____.	predicted in Tidal Current Tables	unpredictable	generally constant	generally too weak to be of concern	
3	156	A	In reading a weather map, closely spaced pressure gradient lines would indicate _____.	high winds	high overcast clouds	calm or light winds	fog or steady rain	
3	157	A	Tropic tides are caused by the _____.	Moon being at its maximum declination	Moon crossing the equator	Sun and Moon both being near 0° declination	Moon being at perigee	
3	158	C	Discounting slip, if your vessel is turning RPM for 10 knots and making good a speed of 10 knots, the current could be _____.	with you at 10 knots	against you at 10 knots	slack	with you at 2 knots	
3	159	B	The apparent wind can be zero when the true wind is from _____.	ahead and equal to the ship's speed	astern and equal to the ship's speed	ahead and equal to twice the ship's speed	astern and equal to twice the ship's speed	

3	161	D	How is a safe water mark, that can be passed close aboard on either side, painted and lighted?	Black and white stripes with an interrupted quick flashing light	Black and red stripes with a Morse (A) light	Black and red stripes with an interrupted quick flashing light	Red and white stripes with a Morse (A) light	
3	162	C	A chart with a scale of 1:80,000 would fall into the category of a _____.	sailing chart	general chart	coastal chart	harbor chart	
3	163	B	How many fixed objects are needed to plot a running fix?	None	One	Two	Three	
3	164	A	The part of a sextant mounted directly over the pivot of the index arm is the _____.	index mirror	horizon glass	micrometer drum	telescope	
3	165	D	On 6 July 1981, at 1000 zone time, you cross the 180th meridian steaming westward. What is your local time?	It is 1000, 5 July.	It is 1000, 6 July.	It is 2200, 7 July.	It is 1000, 7 July.	
3	166	D	On the pole side of the high pressure belt in each hemisphere, the pressure diminishes. The winds along these gradients are diverted by the Earth's rotation toward the east and are known as the _____.	geostrophic winds	doldrums	horse latitudes	prevailing westerlies	
3	167	C	When the Moon's declination is maximum north, which of the following will occur?	Mixed-type tides	Higher high tides and lower low tides	Tropic tides	Equatorial tides	
3	168	C	Your vessel is making way through the water at a speed of 12 knots. Your vessel traveled 30 nautical miles in 2 hours 20 minutes. What current are you experiencing?	A following current at 2.0 knots	A head current of 2.0 knots	A following current of 0.9 knot	A head current of 0.9 knot	
3	169	A	You want to transit Hell Gate on 23 July 1983. What is the period of time around the AM (ZD +4) slack before ebb when the current will be less than 0.5 knot?	0939 to 0957	0943 to 0953	0844 to 0852	0348 to 0356	
3	171	A	Under the U.S. Aids to Navigation System, a lighted buoy with a spherical topmark marks _____.	safe water	a fish trap area	a hazard to navigation	a bifurcation in the channel	
3	172	A	A chart with a scale of 1:45,000 is a _____.	harbor chart	coast chart	general chart	sailing chart	
3	175	C	On 5 July 1981, at 1200 zone time, you cross the 180th meridian steaming westward. What is your local time?	It is 1200, 4 July.	It is 1200, 5 July.	It is 1200, 6 July.	It is 2400, 6 July.	
3	176	C	Which wind pattern has the most influence over the movement of frontal weather systems over the North American continent?	Subpolar easterlies	Northeast trades	Prevailing westerlies	Dominant southwesterly flow	
3	177	B	How many high waters usually occur each day on the East Coast of the United States?	One	Two	Three	Four	

3	178	A	You are steering a southerly course, and you note that the chart predicts an easterly current. Without considering wind, how may you allow for the set?	Head your vessel slightly to the right	Head your vessel slightly to the left	Decrease your speed	Increase your speed	
3	179	C	You are proceeding up a channel at night. It is marked by a range which bears 185°T. You steady up on a compass course of 180° with the range in line dead ahead. This indicates that you(r) _____.	must come right to get on the range	course is in error	compass has some easterly error	are being affected by a southerly current	
3	180	A	What is a lighted safe water mark fitted with to aid in its identification?	A spherical topmark	Red and white retroreflective material	A sequential number	A red and white octagon	
3	181	B	Which navigational mark may only be lettered?	An unlighted, green, can buoy	A spherical buoy	A red buoy	A port side day-shape	
3	182	C	The scale on a chart is given as 1:5,000,000. This means that _____.	1 inch is equal to 5,000 inches on the Earth's surface	1 nautical mile on the chart is equal to 5,000 inches on the Earth's surface	1 inch is equal to 5,000,000 inches on the Earth's surface	1 nautical mile on the chart is equal to 5,000,000 inches on the Earth's surface	
3	184	D	When the index and horizon mirrors of a properly adjusted sextant are at an angle of 45° to each other, the arc reads _____.	22 1/2°	45°	60°	90°	
3	185	D	A ship is in longitude 54°00'W on a true course of 270°. The ship's clocks are on the proper time zone. At what longitude should the clocks be changed to maintain the proper zone time?	45°00'W	52°30'W	60°00'W	67°30'W	
3	186	C	In the doldrums you will NOT have _____.	high relative humidity	frequent showers and thunderstorms	steep pressure gradients	frequent calms	
3	187	D	Which statement is TRUE concerning apogean tides?	They occur only at quadrature.	They occur when the Moon is nearest the Earth.	They cause diurnal tides to become mixed.	They have a decreased range from normal.	
3	188	B	Off Barnegat, NJ, with the wind coming out of the east, the wind-driven current will be flowing approximately _____.	286°	254°	106°	016°	
3	189	C	While steering a course of 150°T, you wish to observe the Sun for a speed check. What would the azimuth have to be?	060°T	090°T	150°T	240°T	
3	190	A	You are enroute to Jacksonville, FL, from San Juan, P.R. There is a fresh N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	steeper waves, closer together	long swells	cirrus clouds	smoother seas and warmer water	

3	191	C	Safe water buoys may show ONLY _____.	flashing red lights	flashing green lights	white lights	yellow lights	
3	192	C	The description "Racon" beside an illustration on a chart would mean a _____.	radar conspicuous beacon	circular radio beacon	radar transponder beacon	radar calibration beacon	
3	193	B	In using Loran-C, skywave reception gives greater range but is _____.	only accurate during daylight hours	much less accurate	only accurate at twilight	more accurate than using ground waves	
3	194	A	The horizon glass of a sextant is _____.	silvered on its half nearer the frame	mounted on the index arm	between the horizon and the shade glasses	All of the above	
3	195	A	The equation of time is 8m 00s. The mean Sun is ahead of the apparent Sun. If you are 2°W of the central meridian of your time zone, when will the apparent Sun cross your meridian?	1216	1208	1200	1152	
3	196	C	The area of strong westerly winds occurring between 40°S and 60°S latitude is called the _____.	polar easterlies	prevailing westerlies	roaring forties	jet streams	
3	197	A	Chart legends printed in capital letters show that the associated landmark is _____.	conspicuous	inconspicuous	a government facility or station	a radio transmitter	
3	198	C	You are enroute to assist vessel A. Vessel A is underway at 6 knots on course 133°T, and bears 343°T at 92 miles from you. What is the time to intercept if you make 9 knots?	7h 44m	7h 12m	6h 43m	6h 08m	
3	199	A	Civil twilight occurs at 0558 zone time on 30 December 1981. Your DR position at that time is LAT 15°02'N, LONG 46°02'W. Which statement concerning the planets available for morning sights is TRUE?	At 0558, Mars can be used for an ex-meridian observation.	Venus, Jupiter, and Mars sights will yield a good three line fix.	Saturn will be near the prime vertical.	Venus will be visible low in the western sky.	
3	200	A	When navigating using GPS, what is an indicator of the geometry of the satellites that your receiver is locked onto?	Horizontal Dilution of Precision	Selective Availability	Doppler Shifting	Precision Coding	
3	201	B	What is a lighted safe water mark fitted with to aid in its identification?	Red and white retroreflective material	A spherical topmark	A sequential number	A red and white octagon	
3	202	D	On charts of U.S. waters, a magenta marking is NOT used for marking a _____.	radio beacon	lighted buoy	prohibited area	5-fathom curve	
3	203	B	In any Loran-C chain, there are three or more stations transmitting pulses which radiate in all directions. One of the stations is the master station, and the others in the chain are the _____.	radio stations	secondary stations	monitor stations	pulse stations	

3	204	B	Because of the reflecting properties of a sextant, if the sextant altitude reads 60° on the limb, the actual arc of the limb from 0° to the 60° reading is _____.	20°	30°	40°	60°	
3	205	A	The difference between local apparent time (LAT) and local mean time (LMT) is indicated by the _____.	equation of time	difference of longitude between the local and central meridian in time units	longitude in time units	zone description	
3	206	C	The winds you would expect to encounter in the North Atlantic between latitudes 5° and 30° are known as the _____.	doldrums	westerlies	trades	easterlies	
3	207	D	An important lunar cycle affecting the tidal cycle is called the nodal period. How long is this cycle?	16 days	18 days	6 years	19 years	
3	208	D	The moon is full and at perigee on 20 January 1983. What is the maximum current you could expect at 2350 (ZD +5) at Nantucket Shoals?	0.5 knot	0.7 knot	0.8 knot	1.0 knot	
3	209	A	The West Wind Drift is located _____.	near 60°S	on each side of the Equatorial Current	in the North Atlantic between Greenland and Europe	in the South Pacific near 5°S	
3	210	B	The position labeled C is a(n) _____.	fix	running fix	estimated position	dead reckoning position	D051NG
3	211	D	The light rhythm of Morse (A) is shown on _____.	preferred-channel buoys	starboard- or port-side buoys	special marks	safe water buoys	
3	212	D	Which aid is NOT marked on a chart with a magenta circle?	Radar station	Radar transponder beacon	Radio beacon	Aero light	
3	213	C	When using GPS, how many theoretical position lines are required for a two-dimensional fix?	1	2	3	4	
3	214	C	A sextant having an index error that is "on the arc" has a _____.	positive correction	dip error	negative correction	semidiameter error	
3	215	C	The equation of time is 12m 00s and the mean Sun is ahead of the apparent Sun. If you are on the central meridian of your time zone, at what zone time will the apparent Sun cross the meridian?	1148	1200	1212	It cannot be determined from the information given.	
3	216	B	The prevailing winds in the band of latitude from approximately 5°N to 30°N are the _____.	prevailing westerlies	northeast trade winds	southeast trade winds	doldrums	

3	217	B	In some parts of the world there is often a slight fall in tide during the middle of the high water period. The effect is to create a longer period of stand at higher water. This special feature is called a(n) _____.	apogean tide	double high water	perigean tide	bore	
3	218	D	Lines of position may be _____.	hyperbolas	straight lines	arcs	All of the above	
3	219	D	The predicted time that the flood begins at the entrance to Delaware Bay is 1526. You are anchored off Chestnut St. in Philadelphia. If you get underway bound for sea at 1300 and turn for 13 knots, at what point will you lose the flood current?	Mile 52	New Castle	Marcus Hook	Billingsport	
3	220	D	At 0000 you fix your position and plot a new DR track line. At 0200 you again fix your position and it is 0.5 mile east of your DR. Which statement is TRUE?	The current is westerly at 0.5 knot.	You must increase speed to compensate for the current.	The current cannot be determined.	The drift is 0.25 knot.	
3	221	B	In United States waters, a buoy having red and white vertical stripes has a light characteristic of _____.	group occulting	Morse (A)	interrupted quick flashing	quick flashing	
3	222	D	Which statement concerning the illustration is correct? (Soundings and heights are in meters)	Maury Lightship swings about her anchor on a circle with a 21-meter diameter.	The position of the lightship is indicated by the center of the star on the symbol's mast.	There is a 12 meter deep hole inside the 5-meter curve just west of Beito Island.	The sunken wreck southwest of Beito Island shows the hull or superstructure above the sounding datum.	D010NG
3	223	B	In the Loran-C configuration shown, the stations located at X, Y, and Z are called _____.	repeater stations	secondary stations	composite stations	alternate stations	D003NG
3	224	A	A sextant having an index error that is "off the arc" has a _____.	positive correction	dip error	negative correction	semidiameter error	
3	225	A	The equation of time is 8m 40s. The apparent Sun is ahead of the mean Sun. If you are on the central meridian of your time zone, the apparent Sun will cross your meridian at _____.	11-51-20 ZT	12-00-00 ZT	12-04-20 ZT	12-08-40 ZT	
3	226	D	What winds blow towards the equator from the area about 30° north?	Prevailing westerlies	Roaring thirties	Equatorial flow	Northeast trades	
3	227	D	The class of tide that prevails in the greatest number of important harbors on the Atlantic Coast is _____.	interval	mixed	diurnal	semidiurnal	

3	228	D	The Illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates a convergence line?	L	F	M	Q	D042NG
3	229	A	The shoreline on charts generally represents the mean _____.	high water line	low water line	low water spring line	tide level	
3	230	A	If the LORAN-C ground wave does NOT extend out as far as the skywave skip distance, there will be a skip zone in which _____.	no LORAN-C signal is received	only ground waves are received	only skywaves are received	both ground waves and skywaves are received	
3	231	B	You are outbound in a buoyed channel on course 015°T. You sight a white light showing a Morse (A) characteristic bearing 359° relative. For safety, you should _____.	change course to 359°T to pass near to the buoy	stay in the channel and leave the buoy to port	alter course to 000°T and leave the buoy well clear to starboard	check the chart to see where the marked danger lies in relation to the buoy	
3	232	D	Which statement concerning the chartlet is TRUE? (Soundings and heights are in meters)	Maury lightship is visible for 17 miles.	The bottom to the south-southeast of the lightship is soft coral.	There is a 12-meter deep west of Beito Island and inside the 5-meter line.	There is a dangerous eddy southeast of Beito Island.	D010NG
3	234	D	When the declination of the Moon is 0°12.5'S, you can expect some tidal currents in Gulf Coast ports to _____.	exceed the predicted velocities	become reversing currents	have either a double ebb or a double flood	become weak and variable	
3	235	C	When the equation of time is taken from the Nautical Almanac for use in celestial navigation, it is used to determine _____.	zone time	sunrise	time of local apparent noon	local mean time	
3	236	C	The winds with the greatest effect on the set, drift, and depth of the equatorial currents are the _____.	doldrums	horse latitudes	trade winds	prevailing westerlies	
3	237	A	Neap tides occur when the _____.	Moon is in its first quarter and third quarter phases	Sun and Moon are on opposite sides of the Earth	Moon's declination is maximum and opposite to that of the Sun	Sun and Moon are in conjunction	
3	238	B	The predicted time that the flood begins at the entrance to Delaware Bay is 1526. You are anchored off Chestnut St. in Philadelphia. If you get underway bound for sea at 1430 and turn for 11 knots, at what point will you lose the ebb current?	New Castle	Liston Pt.	Arnold Pt.	Ship John Shoal Lt.	
3	239	D	As you enter a channel from seaward in a U.S. port, the numbers on the starboard side buoys _____.	decrease and the buoys are black	increase and the buoys are green	decrease and the buoys are red	increase and the buoys are red	

3	240	C	In a river subject to tidal currents, the best time to dock a ship without the assistance of tugs is _____.	at high water	when there is a following current	at slack water	at flood	
3	241	B	A spherical buoy may be _____.	numbered	lettered	green	red	
3	242	A	The difference between the heights of low and high tide is the _____.	range	period	depth	distance	
3	243	A	The loran lines drawn on navigation charts represent _____.	ground waves	skywaves	either ground waves or skywaves interchangeably	an average between ground wave and skywave positions	
3	244	D	To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at what time in relation to the predicted time of the favorable current?	One hour after the predicted time	At the predicted time	30 minutes before flood, one hour after an ebb	30 minutes before the predicted time	
3	245	D	Yesterday you took a time tick using the 1200 GMT broadcast, and the chronometer read 11h 59m 59s. Today at the 1200 GMT time tick the chronometer read 00h 00m 01s. What is the chronometer error?	Gaining 2 seconds	Losing 2 seconds	Fast 2 seconds	Fast 1 second	
3	246	C	The consistent winds blowing from the horse latitudes to the doldrums are called the _____.	prevailing westerlies	polar easterlies	trade winds	roaring forties	
3	247	C	Neap tides occur _____.	at the start of spring, when the Sun is nearly over the equator	only when the Sun and Moon are on the same sides of the Earth and are nearly in line	when the Sun and Moon are at approximately 90° to each other, as seen from the Earth	when the Sun, Moon, and Earth are nearly in line, regardless of alignment order	
3	248	D	What is the index error of sextant A in illustration D050NG?	0° 10' off the arc	0° 10' on the arc	3° 00' off the arc	4° 20' off the arc	D050NG
3	249	D	When using GPS, how many theoretical position lines are required for a three-dimensional fix that takes into account altitude?	1	2	3	4	
3	250	A	Weather systems in the middle latitudes generally travel from _____.	west to east	east to west	north to south	None of the above	
3	251	B	A mid-channel buoy, if lighted, will show a _____.	fixed red light	Morse (A) white light	green light	flashing red light	
3	252	B	A large automated navigational buoy, such as those that have replaced some lightships, would be shown on a chart by which symbol?	A	B	C	D	D015NG
3	253	D	Loran-C is which type of system?	Reflected electron	Electrical radiation	Quarterpoint electrical navigation	Hyperbolic radio navigation	

3	254	A	The range of tide is the _____.	difference between the heights of high and low tide	distance the tide moves out from the shore	duration of time between high and low tide	maximum depth of the water at high tide	
3	255	C	On March 17, at 0500 zone time, you cross the 180th meridian steaming eastward to west longitude. What is your local time?	You are in -12 time zone.	It is 1700, March 18.	It is 0500, March 16.	It is 0500, March 18.	
3	256	A	The belt of light and variable winds between the westerly wind belt and the northeast trade winds is called the _____.	subtropical high pressure belt	intertropical convergence zone	doldrum belt	polar frontal zone	
3	257	D	Spring tides occur _____.	at the start of spring, when the Sun is nearly over the equator	only when the Sun and Moon are on the same side of the Earth and nearly in line	when the Sun and Moon are at approximately 90° to each other as seen from the Earth	when the Sun, Moon, and Earth are nearly in line, in any order	
3	258	D	You are enroute to Savannah, GA, from Recife, Brazil. There is a strong N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	cirrus clouds	long swells	smoother seas and warmer water	steeper waves, closer together	
3	259	C	The Illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "Q" represents a _____.	convergence zone	squall line	convergence line	weather boundary	D042NG
3	260	B	The National Ocean Service publishes the _____.	Light Lists	Coast Pilots	pilot charts	Sailing Directions	
3	261	D	You are heading out to sea in a buoyed channel and see a quick-flashing green light on a buoy ahead of you. In U.S. waters, you should leave the buoy _____.	well clear on either side	about 50 yards off on either side	to port	to starboard	
3	262	D	Which of the buoy symbols shown indicates a safe water mark?	A	B	C	D	D032NG
3	263	B	Loran-C uses the multiple pulse system because _____.	less signal energy is necessary for receiver operation	more signal energy is available at the receiver	it significantly increases the peak power	it increases the signal capacity	
3	264	B	Which of the four adjustable errors in the sextant is the principle cause of index error?	Telescope not being parallel to the frame	Index mirror and horizon glass not being parallel	Index mirror not being perpendicular to the frame	Horizon glass not being perpendicular to the frame	
3	265	C	It is 1200 local time for an observer at 54°E longitude. Which statement is TRUE?	It is afternoon at Greenwich.	It is midnight at 126°E longitude.	The observer is in time zone -4.	All of the above are true.	

3	266	A	The horse latitudes are characterized by _____.	weak pressure gradients and light, variable winds	the formation of typhoons or hurricanes in certain seasons	steady winds in one direction for six months followed by wind reversal for the next six months	steady winds generally from the southeast in the Southern Hemisphere	
3	268	D	The illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "L" represents a _____.	convergence line	maritime air mass	warm front	convergence zone	D042NG
3	269	D	The wind at Frying Pan shoals has been south-southwesterly at an average velocity of 30 knots. The predicted set and drift of the rotary current are 232° at 0.8 knot. What current should you expect?	065° at 1.2 knots	092° at 1.3 knots	139° at 0.6 knot	224° at 0.4 knot	
3	270	C	You are entering port and have been instructed to anchor, as your berth is not yet available. You are on a SW'ly heading, preparing to drop anchor, when you observe the range lights as shown on your starboard beam. You should _____.	drop the anchor immediately as the range lights mark an area free of obstructions	drop the anchor immediately as a change in the position of the range lights will be an indication of dragging anchor	ensure your ship will NOT block the channel or obstruct the range while at anchor	NOT drop the anchor until the lights are in line	D047NG
3	271	D	Your vessel is leaving New York harbor in dense fog. As the vessel slowly proceeds toward sea, you sight a green can buoy on the starboard bow. Which action should you take?	Turn hard right to get back into the channel.	Pass the buoy close to, leaving it to your port.	Stop and fix your position.	Stand on, leaving the buoy to your starboard.	
3	272	B	What does the symbol shown indicate on a chart?	A sunken vessel marked by a buoy	A safe water beacon	A red and white can buoy	A can buoy with a rotating white light	D033NG
3	273	A	Loran-C is which type of navigation system?	Hyperbolic, long-range navigation system	Short-range electronic	Long-range, high frequency navigation system	Long-range, with a frequency of 1950 kHz	
3	274	A	Which of the four adjustable errors in the sextant causes side error?	Horizon glass not being perpendicular to the frame	Index mirror not being perpendicular to the frame	Telescope not being parallel to the frame	Elliptical centering error	
3	275	A	Which statement concerning illustration is correct? (Soundings and heights are in meters)	The sunken wreck southwest of Beito Island shows the hull or superstructure above the sounding datum.	There is a 12-meter deep hole inside the 5-meter curve just west of Beito Island.	The position of the lightship is indicated by the center of the star on the symbol's mast.	Maury Lightship swings about her anchor on a circle with a 21-meter diameter.	D010NG

3	276	B	The region of high pressure extending around the Earth at about 35°N latitude is called the _____.	prevailing westerlies	horse latitudes	troposphere	doldrums	
3	277	B	Your vessel goes aground in soft mud. You would have the best chance of refloating it on the next tide if it grounded at _____.	low water neap	low water spring	high water neap	high water spring	
3	278	D	You are underway on course 050°T and your maximum speed is 11 knots. The eye of a hurricane bears 070°T, 80 miles from your position. The hurricane is moving towards 270°T at 19 knots. If you maneuver at 11 knots to avoid the hurricane, what could be the maximum CPA?	84 miles	79 miles	74 miles	66 miles	
3	279	A	As a vessel changes course to starboard, the compass card in a magnetic compass _____.	remains aligned with compass north	also turns to starboard	first turns to starboard then counterclockwise to port	turns counterclockwise to port	
3	280	B	Under the U.S. Aids to Navigation System, a lighted buoy with a spherical topmark marks _____.	the port side of the channel	safe water	a hazard to navigation	the position of underwater cables	
3	281	B	A lighted buoy to be left to starboard, when entering a U.S. port from seaward, shall have a _____.	white light	red light	green light	light characteristic of Morse (A)	
3	282	D	The symbol which appears beside a light on a chart reads "Gp Fl R (2) 10 sec 160 ft 19M". Which characteristic describes the light?	It is visible 10 miles.	Its distinguishing number is "19M".	It has a radar reflector.	None of the above	
3	283	A	Loran-C operates on a single frequency centered on _____.	100 kHz	500 kHz	1,850 kHz	1,950 kHz	
3	284	B	The marine sextant is subject to seven different types of errors, four of which may be corrected by the navigator. An error NOT correctable by the navigator is _____.	index error	prismatic error	perpendicularity of the horizon glass	perpendicularity of the index mirror	
3	285	C	The apparent wind is zero when the true wind is _____.	zero	from ahead and equal to the ship's speed	from astern and equal to the ship's speed	from astern and is twice the ship's speed	
3	286	D	On the pole side of the trade wind belt, there is an area of high pressure with weak pressure gradients and light, variable winds. This area is called the _____.	prevailing westerlies	geostrophic winds	doldrums	horse latitudes	

3	287	D	The datum from which the predicted heights of tides are reckoned in the tide tables is the same as that used for the charts of the locality. The depression of the datum below mean sea level for Hampton Roads, Virginia is _____.	between -.7 and +.5 feet	between 1.9 and 3.2 feet	4.1 feet	1.2 feet	
3	288	C	When using a radar in a unstabilized mode, fixes are determined most easily from _____.	center bearings	tangent bearings	ranges	objects that are close aboard	
3	289	A	A position obtained by crossing lines of position taken at different times and advanced to a common time is a(n) _____.	running fix	dead-reckoning position	fix	estimated position	
3	290	D	The true wind is from 330°T, speed 6 knots. You want the apparent wind to be 30 knots from 10° on your port bow. To what course and speed must you change?	Cn 240°, 28.0 knots	Cn 270°, 28.0 knots	Cn 180°, 30.0 knots	Cn 090°, 32.5 knots	
3	291	A	A buoy marking a wreck will show a(n) _____.	white light FL (2) and a topmark of 2 black spheres	occulting green light and may be lettered	yellow light and will be numbered	continuous quick white light and may be numbered	
3	292	C	The symbol which appears beside a light on a chart reads "Gp Fl R (2) 10 sec 160 ft 19M". Which characteristic does the light possess?	It is visible two nautical miles.	Its distinguishing number is "19M".	It has a red light.	It flashes once every ten seconds.	
3	293	C	The use of pulse groups and extremely precise timing at each Loran-C station makes possible the use of _____.	high frequency pulses	combinations of high and low frequency pulses	the same frequency for all stations in a chain	varied long and short pulses	
3	294	A	What is a nonadjustable error of the sextant?	Prismatic error	Index error	Side error	Error of collimation	
3	295	B	The difference (measured in degrees) between the GHA of the body and the longitude of the observer is the _____.	right ascension	meridian angle	SHA of the observer	zenith distance	
3	296	A	The wind flow from the horse latitudes to the doldrums is deflected due to _____.	Coriolis force	the mid-latitude, semi-permanent high	differing atmospheric pressures	the prevailing westerlies	
3	297	C	The tides in Boston Harbor generally _____.	are diurnal in nature	have their variations caused by the changing declination of the Moon	have a greater range than the tides in Gulf Coast ports	All of the above	
3	298	A	A great circle crosses the equator at 173°E. It will also cross the equator at what other longitude?	7°W	73°E	73°W	173°W	
3	299	B	Steady precipitation is typical of _____.	coming cold weather conditions	a warm front weather condition	high pressure conditions	scattered cumulus clouds	
3	300	C	Which of the symbols shown represents a warm front?	A	B	C	D	D018NG

3	301	D	In the U.S. Aids to Navigation System, lateral aids as seen entering from seaward will display lights with which characteristic?	Flashing	Occulting	Quick Flashing	All of the above	
3	302	A	Which symbol represents a 20-fathom curve?	-..-..-..-..-	- - - - - - - -	- - . - - . - - . - - .	- - - - - - - -	
3	304	B	In order to remove index error from a sextant, you should adjust the _____.	index mirror to make it parallel to the horizon glass with the index set at zero	horizon glass to make it parallel to the index mirror with the index set at zero	horizon glass to make it parallel to the sextant frame	telescope to make it perpendicular to the sextant frame	
3	305	A	IN REGION A of the IALA Buoyage System, when entering from seaward, the port side of a channel would be marked by a _____.	red can buoy	black can buoy	red conical buoy	black conical buoy	
3	306	A	Weather conditions in the middle latitudes generally move _____.	eastward	westward	northward	southward	
3	307	C	The time meridian that is used when computing the currents for Pensacola Bay, Florida, is _____.	60°W	75°W	90°W	105°W	
3	308	B	The wind at Frying Pan shoals has been west-northwesterly at an average velocity of 40 knots. The predicted set and drift of the rotary current are 323° at 0.6 knot. What current should you expect?	001° at 0.7 knot	018° at 0.4 knot	052° at 0.6 knot	089° at 0.9 knot	
3	309	C	You are underway on course 050°T and your maximum speed is 12 knots. The eye of a hurricane bears 120°T, 110 miles from your position. The hurricane is moving towards 285°T at 25 knots. What course should you steer at 12 knots to have the maximum CPA?	332°	339°	346°	357°	
3	310	B	Which sextant shown has an index error of 3'30" off the arc?	A	B	C	D	D050NG
3	311	B	You are steaming southward along the west coast of the United States when you encounter a buoy showing a flashing red light. The buoy should be left on _____.	the vessel's starboard side	the vessel's port side	either side close aboard	either side well clear	
3	312	B	The depth of water on a chart is indicated as 23 meters. This is equal to _____.	11.5 fathoms	12.6 fathoms	69.0 feet	78.6 feet	
3	313	C	The Loran-C receiver _____.	is not affected by interference	can be used at any distance with accuracy	can be affected by interference	is reliable only from sunrise to sunset	
3	314	D	Which of these sextant errors is nonadjustable?	Prismatic error	Graduation error	Centering error	All of the above	

3	316	A	According to Buys Ballot's law, when an observer in the Northern Hemisphere experiences a northwest wind, the center of low pressure is located to the _____.	northeast	west-southwest	northwest	south-southeast	
3	317	C	The time meridian used for tide computations in New York Harbor is _____.	52°30'W	60°00'W	75°00'W	82°30'W	
3	318	B	Vessels required to have an Automatic Radar Plotting Aid must have a device to indicate the _____.	distance to the next port	speed of the vessel over the ground or through the water	time of the next navigational satellite pass	None of the above	
3	319	B	The Illustration shows the symbols used by radio facsimile weather charts. The symbol indicated at letter "F" represents a _____.	maritime air mass	weather boundary	convergence zone	squall line	D042NG
3	320	C	Sometimes foreign charts are reproduced by NGA (NIMA). On such a chart, a wire-dragged, swept area may be shown in green or _____.	red	black	purple	yellow	
3	321	B	Which buoy may be even numbered?	Mid-channel buoy	Unlighted nun buoy	Lighted green buoy	All of the above	
3	323	B	The position accuracy of Loran-C degrades with increasing distance from the transmitting stations as _____.	gains are made over the signal path	a result of variation in propagation conditions	the frequency of the pulses increases	the stations shift pulses	
3	324	C	Index error of a sextant is primarily caused by _____.	improperly correcting the other errors in a sextant	the horizon glass not being parallel to the horizon mirror	the horizon glass not being parallel to the index mirror	human error in taking a celestial observation	
3	325	D	What is the longitude of the geographical position of a body whose Greenwich hour angle is 210°30'?	30°30'E	59°30'W	120°30'W	149°30'E	
3	326	A	You are steaming west in the North Atlantic in an extratropical cyclonic storm, and the wind is dead ahead. According to the law of Buys Ballot, the center of low pressure lies to the _____.	north	south	east	west	
3	327	B	When daylight savings time is kept the times of tide and current calculations must be adjusted. One way of doing this is to _____.	subtract one hour from the times listed under the reference stations	add one hour to the times listed under the reference stations	apply no correction, as the times in the reference stations are adjusted for daylight savings time	add 15° to the standard meridian when calculating the time difference	
3	328	C	The direction of prevailing winds in the Northern hemisphere is caused by the _____.	magnetic field at the North Pole	Gulf Stream	Earth's rotation	Arctic cold fronts	
3	329	D	The symbols shown are used on radio facsimile weather charts. Which symbol indicates a weather boundary?	I	H	G	F	D042NG

3	330	A	You are taking bearings on two known objects ashore. The BEST fix is obtained when the angle between the lines of position is _____.	90°	30°	45°	60°	
3	331	D	What indicates a buoy that should be left to port when entering from seaward? (U.S. Aids to Navigation System)	White light	Group flashing characteristic	Nun shape	Odd number	
3	333	B	Loran-C stations transmit groups of pulses at specific times. The time interval between transmissions from the master station is the _____.	coding delay	group repetition interval	pulse interval	phase code	
3	334	D	The index error is determined by adjusting the _____.	sextant frame	horizon glass	index mirror	micrometer drum	
3	335	A	What is the geographic longitude of a body whose GHA is 232°27'?	127°33'E	52°27'E	61°52'W	61°52'E	
3	336	D	You are steaming eastward in the North Atlantic in an extratropical cyclonic storm and the wind is dead ahead. According to the law of Buys Ballot, the center of the low pressure lies _____.	ahead of you	astern of you	to the north	to the south	
3	337	B	To predict the actual depth of water using the Tide Tables, the number obtained from the Tide Tables is _____.	the actual depth	added to or subtracted from the charted depth	multiplied by the charted depth	divided by the charted depth	
3	338	C	The illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "N" represents _____.	hail	freezing rain	rain	snow	D042NG
3	339	C	The wind at Frying Pan shoals has been north-northeasterly at an average velocity of 30 knots. The predicted set and drift of the rotary current are 355° at 0.8 knot. What current should you expect?	010° at 1.1 knots	047° at 0.3 knot	325° at 0.7 knot	279° at 1.0 knot	
3	340	D	Information about the direction and velocity of rotary tidal currents is found in the _____.	Mariner's Guide	Nautical Almanac	Tide Tables	Tidal Current Tables	
3	341	C	Buoys which only mark the left or right side of the channel will never exhibit a light with which characteristic?	Flashing	Quick flashing	Composite group flashing	Equal interval (isophase)	
3	342	D	A polyconic projection is based on a _____.	plane tangent at one point	cylinder tangent at one parallel	cone tangent at one parallel	series of cones tangent at selected parallels	

3	344	B	A marine sextant has the index arm set at zero and the reflected image of the horizon forms a continuous line with the actual image. When the sextant is rotated about the line of sight the images separate. The sextant has _____.	error of perpendicularity	side error	prismatic error	centering error	
3	345	C	A navigator fixing a vessel's position by radar _____.	should never use radar bearings	should only use radar bearings when the range exceeds the distance to the horizon	can use radar information from one object to fix the position	must use information from targets forward of the beam	
3	346	C	If your weather bulletin shows the center of a low pressure area to be 100 miles due east of your position, what winds can you expect in the Northern Hemisphere?	East to northeast	East to southeast	North to northwest	South to southeast	
3	347	A	The illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates rain?	N	M	I	G	D042NG
3	348	D	When using a radar in an unstabilized mode, fixes are determined most easily from _____.	center bearings	tangent bearings	objects that are close aboard	ranges	
3	349	C	The direction of the southeast trade winds is a result of the _____.	equatorial current	humidity	rotation of the earth	change of seasons	
3	350	C	When making landfall at night, the light from a powerful lighthouse may sometimes be seen before the lantern breaks the horizon. This light is called the _____.	diffusion	backscatter	loom	elevation	
3	351	B	Which buoy may be odd numbered?	A spherical buoy	An unlighted can buoy	A red buoy	A yellow buoy	
3	352	D	Which chart projection would be most suitable for marine surveying?	Gnomonic	Lambert conformal	Mercator	Polyconic	
3	354	C	In order to remove side error from a sextant, you should adjust the _____.	horizon glass to make it parallel to the horizon mirror with the index set at zero	horizon glass to make it perpendicular to the index mirror with the index set at zero	horizon glass to make it perpendicular to the sextant frame	telescope to make it parallel to the sextant frame	
3	355	C	During the month of October the Sun's declination is _____.	north and increasing	north and decreasing	south and increasing	south and decreasing	
3	356	D	When facing into the wind in the Northern Hemisphere the center of low pressure lies _____.	directly in front of you	directly behind you	to your left and behind you	to your right and behind you	

3	357	B	On 10 August 1983 you will dock near Days Point, Weehawken, on the Hudson River, at 1800 DST (ZD +4). The charted depth alongside the pier is 24 feet (7.3 meters). What will be the depth of water when you dock?	23.5 feet (7.1 m)	23.9 feet (7.2 m)	24.9 feet (7.5 m)	26.3 feet (8.0 m)	
3	358	B	What will be the set of the rotary current at Nantucket Shoals at 1245 (ZD +5) 14 January 1983?	015°	125°	162°	225°	
3	359	D	You are enroute to assist vessel A. Vessel A is underway at 4.5 knots on course 233°T, and bears 264°T, 68 miles from you. What is the time to intercept if you make 13 Knots?	6h 31m	6h 47m	7h 03m	7h 37m	
3	360	B	The Illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "M" represents _____.	rain	snow	hail	ice	D042NG
3	361	B	As your vessel is heading southward along the east coast of the United States, you encounter a buoy showing a red flashing light. How should you pass this buoy?	Pass it about 50 yards off on either side.	Leave it to your starboard.	Leave it to your port.	Pass it well clear on either side.	
3	362	D	Which statement about a simple conic chart projection is TRUE?	It is an equal-area projection.	It is a conformal projection.	Meridians appear as curved lines.	The scale is correct along any meridian.	
3	363	D	Your dead reckoning position should be plotted _____.	whenever an estimated position is plotted	when it agrees with your loran position	when coming on or going off soundings	at least every hour on the hour in the open waters of the sea	
3	364	A	What causes the error of collimation with regards to the four adjustments to a sextant?	Telescope not parallel to the frame	Personal error	The frame and index mirror not perpendicular	The frame and horizon glass not perpendicular	
3	365	A	The Sun at a maximum declination north would be approximately at _____.	aphelion	perihelion	autumnal equinox	first point of Aries	
3	366	B	If an observer in the Northern Hemisphere faces the surface wind, the center of low pressure is to his _____.	left, slightly behind him	right, slightly behind him	left, slightly in front of him	right, slightly in front of him	
3	367	C	What will be the time after 0800 EST (ZD +5) that the height of the tide at South Freeport, ME, will be 6.0 feet (1.8 meters) on 7 November 1983?	0936	0942	0951	1001	
3	368	A	A great circle crosses the equator at 134°E. It will also cross the equator at what other longitude?	46°W	124°W	134°W	34°E	

3	369	D	You are underway on course 050°T and your maximum speed is 11 knots. The eye of a hurricane bears 070°T, 80 miles from your position. The hurricane is moving towards 270°T at 19 knots. What course should you steer at 11 knots to have the maximum CPA?	250°	234°	227°	215 °	
3	370	D	Prevailing winds between 30°N and 60°N latitude are from the _____.	north	south	east	west	
3	371	C	Which buoy may be odd numbered?	Mid-channel buoy	Unlighted nun buoy	Lighted green buoy	All of the above	
3	372	A	You would find the variation on a polyconic projection chart _____.	on the compass rose	on the mileage scale	written on the chart title	at each line of longitude	
3	373	B	How is a navigation light on the Mississippi River identified on an Army Corps of Engineers navigation map?	Name and light characteristic	Name and miles from a reference point	Light characteristic and miles A.H.P.	None of the above	
3	374	A	There are seven sources of error in the marine sextant. Of the four errors listed, which one is adjustable?	Error of collimation	Prismatic error	Graduation error	Centering error	
3	375	A	If the Sun's observed altitude is 47°50', the zenith distance is _____.	42°10'	42°50'	47°50'	132°10'	
3	376	D	According to Buys Ballot's law, when an observer in the Northern Hemisphere experiences a northeast wind the center of low pressure is located to the _____.	northeast	west-southwest	northwest	south-southeast	
3	377	B	Determine the height of the tide at 2045 EST (ZD +5) at Augusta, ME, on 8 March 1983.	1.4 feet (0.5 meter)	1.9 feet (0.6 meter)	2.3 feet (0.7 meter)	2.6 feet (0.8 meter)	
3	378	B	A navigator fixing a vessel's position by radar _____.	should never use radar bearings	can use radar information from one object to fix the position	should only use radar bearings when the range exceeds the distance to the horizon	must use information from targets forward of the beam	
3	379	C	The steady current circling the globe at about 60°S is the _____.	Prevailing Westerly	Sub-Polar Flow	West Wind Drift	Humboldt Current	
3	380	B	Prevailing winds between 30°N and 60°N latitude are from the _____.	east	west	north	south	
3	381	B	A nun buoy will _____.	be green in color	have an even number	be left to port when entering from seaward	be cylindrical in shape	
3	382	A	Which would you consult for information about the general current circulation in the North Atlantic Ocean?	Pilot chart	Coast Pilot	Current Table	Climatological Atlas	

3	384	D	Which is a nonadjustable error of the sextant?	Error of perpendicularity	Side error	Error of collimation	Centering error	
3	385	C	The difference of latitude (l) between the geographic position (GP) of a celestial body and your position, at the time of upper transit, is represented by _____.	colatitude	codistance	zenith distance	altitude	
3	386	B	Your vessel is on course 180°T speed 22 knots. The apparent wind is from 70° off the port bow, speed 20 knots. The true direction and speed of the wind are _____.	45°T, 21.0 knots	51°T, 24.0 knots	58°T, 21.2 knots	64°T, 26.0 knots	
3	388	D	You are underway on course 120°T and your maximum speed is 12 knots. The eye of a hurricane bears 150°T, 120 miles from your position. The hurricane is moving towards 295°T at 20 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?	89 miles	96 miles	105 miles	117 miles	
3	389	A	The edge of a hurricane has overtaken your vessel in the Gulf of Mexico, and the northwest wind of a few hours ago has shifted to the west. This is an indication that you are located in the _____.	navigable semicircle	dangerous semicircle	low pressure area	eye of the storm	
3	390	A	During the winter months, the southeast trade winds are _____.	stronger than during the summer months	weaker than during the summer months	drier than during the summer months	wetter than during the summer months	
3	391	C	When outbound from a U.S. port, a buoy displaying a flashing red light indicates _____.	a junction with the preferred channel to the left	a sharp turn in the channel to the right	the port side of the channel	a wreck to be left on the vessel's starboard side	
3	392	B	A pilot chart does NOT contain information about _____.	average wind conditions	tidal currents	magnetic variation	average limits of field ice	
3	394	C	An instrument designed to maintain a continuous record of atmospheric pressure is a(n) _____.	mercurial barometer	aneroid barometer	barograph	thermograph	
3	395	A	If the Sun's observed altitude is 27°12', the zenith distance is _____.	62°48'	27°12'	152°48'	43°12'	
3	396	C	Your vessel is on course 150°T, speed 17 knots. The apparent wind is from 40° off the starboard bow, speed 15 knots. What is the speed of the true wind?	9.0 knots	10.2 knots	11.0 knots	12.0 knots	
3	397	D	The mean tide level at Peaks Island, ME, is _____.	1.8 feet (0.5 meters)	2.5 feet (0.8 meters)	3.2 feet (1.0 meters)	4.5 feet (1.4 meters)	

3	398	B	The velocity of the apparent wind can be less than the true wind and from the same direction, if certain conditions are present. One condition is that the _____.	ship's speed is more than the true wind velocity	true wind is from dead astern	true wind is on the beam	true wind is from dead ahead	
3	399	D	Where will you find information about the duration of slack water?	American Practical Navigator	Sailing Directions	Tide Tables	Tidal Current Tables	
3	400	D	Information about the currents for the Pacific Coast of the U. S. are found in the _____.	Ocean Current Tables	Nautical Almanac	Tide Tables	Tidal Current Tables	
3	401	A	You are steaming in a westerly direction along the Gulf Coast. You see ahead of you a lighted buoy showing a red isophase light. Which action should you take?	Alter course to port and leave the buoy to starboard.	Alter course to starboard and leave the buoy to port.	Alter course and leave the buoy near by on either side.	Alter course and pass the buoy well-off on either side.	
3	402	D	All of the following can be found on a Pilot Chart EXCEPT information concerning the _____.	percentage of frequency of wave heights	percentage of poor visibility conditions	sea surface temperatures	amounts of precipitation	
3	404	B	An aneroid barometer is an instrument _____.	used to measure the speed of wind	in which the pressure of the air is measured	that tells which direction a storm is coming from	used to measure the height of waves	
3	405	C	At upper transit, if the zenith distance is 34°, the geographical distance from the observer to a body's GP is _____.	510 miles	1220 miles	2040 miles	2260 miles	
3	406	D	Your vessel is on course 135°T, speed 18 knots. From the appearance of the sea you estimate the speed of the true wind as 24.5 knots. The apparent wind is 40° on the starboard bow. Determine the speed of the apparent wind.	24.2 knots	28.4 knots	32.2 knots	36.0 knots	
3	407	B	What would be the height of the tide at Crisfield, MD, at 0310 DST (ZD +4) on 6 May 1983?	0.1 foot	0.5 foot	1.1 feet	1.6 feet	
3	408	C	A buoy bears 176°T at 3000 yards. What is the course to make good to leave the buoy 100 yards to port?	174°T	176°T	178°T	180°T	
3	409	A	On November 1st the zone time is 1700 EST (ZD +5) in LONG 75°W. What is the corresponding zone time and date in LONG 135°E?	0700, November 2nd	0700, November 1st	2200, November 1st	2200, October 31st	
3	410	B	The height of the tide at low water is 0.0 feet. The range is 9.0 feet. The duration is 06h 00m. The height of the tide 02h 12m before high water will be _____.	8.3 feet	6.3 feet	4.7 feet	2.7 feet	

3	411	C	When entering from seaward, a buoy displaying a single-flashing red light would indicate _____.	a junction with the preferred channel to the left	a sharp turn in the channel to the right	the starboard side of the channel	a wreck to be left on the vessel's port side	
3	412	A	If you were sailing in the North Pacific and were interested in the ice and iceberg limits, you could find this information in the _____.	Pilot Chart	Coast Pilot	Notice to Mariners	None of the above	
3	414	D	The barometer is an instrument for measuring the _____.	temperature	relative humidity	dew point	atmospheric pressure	
3	415	A	If the Sun's observed altitude is 54°30', what is the zenith distance?	35°30'	45°30'	12°30'	14°30'	
3	416	B	A ship is on course 195° at a speed of 15 knots. The apparent wind is from 40° on the port bow, speed 30 knots. The direction and speed of the true wind are _____.	068°T, 30 knots	127°T, 21 knots	263°T, 42 knots	292°T, 42 knots	
3	417	D	On 6 July 1983, at 1830 DST (ZD +4), what will be the predicted height of tide at Newburgh, NY?	3.3 feet	2.6 feet	2.4 feet	2.0 feet	
3	418	A	In most cases, the direction of the apparent wind lies between the bow and _____.	the direction of the true wind	true north	the beam on the windward side	the beam on the lee side	
3	419	B	The ocean bottom that extends from the shoreline out to an area where there is a marked change in slope to a greater depth is the _____.	abyssal plain	continental shelf	borderland	offshore terrace	
3	420	A	You are inbound in a channel marked by a range. The range line is 309°T. You are steering 306°T and have the range in sight as shown. The range continues to open. What action should you take?	Alter course to the left until the range closes then steer to the left of 306°T.	Maintain course as it is normal for the range to open as you get close.	Alter course to the left to close the range, then alter course to 309°T.	Alter course to the right to 309°T or more to bring the range in line.	D047NG
3	421	B	Daylight savings time is a form of zone time that adopts the time _____.	one zone to the west	one zone to the east	two zones to the west	two zones to the east	
3	422	B	If you are sailing from the East Coast of the United States to the Caribbean Sea, which publication would contain information on weather, currents, and storms?	Sailing Charts of the Caribbean Sea	Pilot Charts of the North Atlantic	Light Lists, Atlantic and Gulf Coast	Tidal Current Tables	
3	424	D	For an accurate barometer check, you would _____.	check it with a barometer on another vessel	take readings from several barometers and average them	check it with the barometer at the ship chandlery	check it against radio or National Weather Service reports of the immediate vicinity	
3	425	D	90° - Ho = _____.	sextant altitude	co-latitude	LHA	zenith distance	
3	426	C	The wind speed and direction observed from a moving vessel is known as _____.	coordinate wind	true wind	apparent wind	anemometer wind	

3	427	C	On 23 March 1983, at Kingston Point, NY, what is the earliest time after 1700 EST (ZD +5) that the predicted tide will be +2.0 feet?	1730	1800	1854	2030	
3	428	B	A buoy bears 178°T at 3000 yards (2700 meters). What is the course to make good to leave the buoy 100 yards (90 meters) to starboard?	174°T	176°T	178°T	180°T	
3	429	B	A great circle crosses the equator at 127°W. It will also cross the equator at what other longitude?	127°E	53°E	27°E	27°W	
3	430	D	The southeast trade winds actually blow toward the _____.	southeast	south	east	northwest	
3	431	D	When a buoy marks a channel bifurcation, the preferred channel is NOT indicated by _____.	the shape of an unlighted buoy	the light color of a lighted buoy	the color of the topmost band	whether the number is odd or even	
3	432	B	When using a Lambert conformal chart in high latitudes, angles such as bearings are measured in reference to _____.	the meridian through the object of the bearing	the meridian through the ship's position	the meridian midway between the ship and the object	any meridian	
3	434	B	The purpose of the "set" hand on an aneroid barometer is to _____.	adjust the barometer	indicate any change in the reading of the barometer	provide a correction for height above sea level	provide a correction for temperature changes	
3	435	C	If an observer is at 35°N latitude, his zenith is _____.	55°S of the celestial equator	at the north celestial pole	35°N of the celestial equator	55°N of the celestial equator	
3	436	C	A wind vane on a moving vessel shows _____.	dead reckoning wind direction	true wind direction	apparent wind direction	estimated wind direction	
3	437	B	Your vessel will be docking at Chester, PA, during the evening of 22 April 1983. The chart shows a depth of 20 feet (6.1 meters) at the pier. What will be the depth of water available at 1856 EST (ZD +5)?	22.4 feet (6.8 meters)	23.4 feet (7.2 meters)	24.9 feet (7.6 meters)	25.7 feet (7.8 meters)	
3	438	C	Your longitude is 124°E, and your local mean time is 0520 on the 5th of the month. The mean time and date at Greenwich is _____.	1336 on the 4th	1336 on the 5th	2104 on the 4th	2104 on the 5th	
3	439	A	If a weather bulletin shows the center of a low pressure system to be 100 miles due east of you, what winds can you expect in the Southern Hemisphere?	South-southwesterly	North-northwesterly	South-southeasterly	North-northeasterly	
3	441	B	A yellow buoy may exhibit a(n) _____.	fixed red light	flashing light	white light	occulting light	
3	442	D	In very high latitudes, the most practical chart projection is the _____.	Mercator	gnomonic	azimuthal	Lambert conformal	

3	444	B	A sylphon cell is a part of a _____.	maximum thermometer	barograph	thermograph	hygrometer	
3	445	C	The values of the Greenwich hour angle and declination, tabulated in all almanacs, are for the _____.	upper limb of a celestial body	lower limb of a celestial body	centers of the various celestial bodies	lower limb of the Sun and Moon; center of the stars and planets	
3	446	B	The usual sequence of directions in which a tropical cyclone moves in the Southern Hemisphere is _____.	northwest, west, and south	southwest, south, and southeast	north, northwest, and east	west, northwest, and north	
3	447	A	On 27 April 1983, at 1105 DST (ZD +4), what will be the predicted height of tide at Falkner Island, CT?	5.3 feet (1.6 m)	5.6 feet (1.7 m)	6.2 feet (1.9 m)	6.8 feet (2.7 m)	
3	448	C	Mean high water is the reference datum used to measure _____.	soundings on the east coast of the United States	soundings in European waters	heights of topographical features in the United States	both heights and soundings worldwide	
3	449	D	You are enroute to assist vessel A. Vessel A is underway at 5 knots on course 063°T, and bears 136°T at 78 miles from you. What is the course to steer at 13 knots to intercept vessel A?	340°	295°	158°	114°	
3	450	C	You are enroute to Jacksonville, FL, from San Juan, P.R. There is a fresh N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	cirrus clouds	smoother seas and warmer water	steeper waves, closer together	long swells	
3	451	A	Which light characteristic may be used on a special purpose mark?	Fixed	Occulting	Equal interval	Quick flashing	
3	452	A	When navigating in high latitudes and using a chart based on a Lambert conformal projection, _____.	a straight line drawn on the chart approximates a great circle	the chart should not be used outside of the standard parallels	the course angle is measured at the mid-longitude of the track line	distance cannot be measured directly from the chart	
3	454	A	On what does the operation of an aneroid barometer depend?	Thin, metal, air tight cell	Curved tube containing alcohol	Column of mercury supported by atmospheric pressure	Expansion of mercury in a closed tube	
3	455	D	The height of eye correction is smaller than geometrical dip because of _____.	the angle between the horizontal and the line of sight to the visible horizon	index error	parallax	terrestrial refraction	

3	456	D	Which condition exists in the eye of a hurricane?	Wind rapidly changing direction	A temperature much lower than that outside the eye	Towering cumulonimbus clouds	An extremely low barometric pressure	
3	457	D	Find the height of the tide at Port Wentworth, GA, on 5 October 1983, at 1840 DST (ZD +4).	3.0 feet	3.5 feet	4.0 feet	4.4 feet	
3	488	B	A great circle crosses the equator at 93°W. It will also cross the equator at what other longitude?	13°E	87°E	177°E	177°W	
3	489	A	You are anchored in the Aleutian Island chain and receive word that a tsunami is expected to strike the islands in six hours. What is the safest action?	Get underway and be in deep, open-ocean water when the tsunami arrives.	Increase the scope of the anchor cable and drop the second anchor underfoot at short stay.	Get underway and be close inshore on the side of the island away from the tsunami.	Plant both anchors with about a 60° angle between them, and let out a long scope to each anchor.	
3	490	B	You are underway on course 050°T and your maximum speed is 10 knots. The eye of a hurricane bears 100°T, 90 miles from your position. The hurricane is moving towards 285°T at 19 knots. Which course should you steer at 10 knots to have the maximum CPA?	221°	226°	233°	238°	
3	491	D	A special purpose buoy shall be _____.	lighted with a white light	striped black and red	lighted with a red light	yellow	
3	492	B	Which type of projection is formed if a plane is tangent to the Earth, and points are projected geometrically from the center of the Earth?	Lambert conformal	Oblique gnomonic	Mercator	Transverse conic	
3	493	C	The picture shown represents the geographic location of a vessel and the radar presentation at the same time. Which statement is TRUE?	Ship No. 1 is not detected due to the shadow effect of the headland.	The small island is not detected due to the effect of beam width.	A tangent bearing of the headland to the south-southeast should be corrected by adding one-half of the beam width.	Ship No. 2 is not detected due to the reflective mass of the background mountain overpowering the ship's reflective signals.	D011NG
3	494	D	Aneroid barometers are usually calibrated to indicate atmospheric pressure in _____.	inches of mercury and centimeters	feet of mercury and millibars	inches of mercury and millimeters	inches of mercury and millibars	
3	495	B	A semidiameter correction is applied to observations of _____.	Mars	the Moon	Jupiter	All of the above	
3	496	D	Severe tropical cyclones (hurricanes, typhoons) occur in all warm-water oceans except the _____.	Indian Ocean	North Pacific Ocean	South Pacific Ocean	South Atlantic Ocean	

3	497	B	What will be the time after 0300 (ZD +4), on 5 March 1983, when the height of the tide at Port of Spain, Trinidad, will be 2.5 feet (.76 meters) ?	0548	0602	0618	0634	
3	498	C	What is an advantage of the magnetic compass aboard vessels?	Compass error is negligible at or near the earth's magnetic poles.	It does not have to be checked as often.	It is reliable due to it's essential simplicity.	All points on the compass rose are readily visible.	
3	499	D	Which of the symbols shown represents an occluded front?	A	B	C	D	D018NG
3	500	B	The National Geospatial-Intelligence Agency (formerly the National Imagery and Mapping Agency) would produce a chart of the coast of _____.	Alaska	Canada	Puerto Rico	Hawaii	
3	501	D	Which of the buoys listed below could be used to mark an anchorage?	White buoy numbered "3"	White buoy with a green top	White buoy with orange bands	Yellow buoy lettered "N"	
3	502	A	A gnomonic projection is based on a(n) _____.	plane tangent at one point	cylinder tangent at the equator	cone tangent at one parallel	infinite series of cones tangent at selected parallels	
3	503	D	You are approaching a light fitted with a RACON. The light may be identified on the radar by _____.	a dashed line running from the center of the scope to the light	an audible signal when the sweep crosses the light	a circle appearing on the scope surrounding the light	a coded signal appearing on the same bearing at a greater range than the light	
3	504	A	Barometer readings in weather reports are given in terms of pressure at _____.	sea level	Washington, D.C.	the weather station	the broadcasting station	
3	505	D	The error in the measurement of the altitude of a celestial body, caused by refraction, increases as the _____.	horizontal parallax decreases	observer's height above sea level increases	humidity of the atmosphere decreases	altitude of the body decreases	
3	506	D	You are to sail from Elizabethport, N.J., on 22 May 1983, with a maximum draft of 28 feet. You will pass over an obstruction in the channel near Sandy Hook that has a depth of 26.5 feet. The steaming time from Elizabethport to the obstruction is 1h 40m. What is the earliest time (ZD + 4) you can sail on the afternoon of 22 May and pass over the obstruction with 2 feet of clearance?	1454	1424	1405	1342	
3	507	A	What will be the time after 1000 EST (ZD +5), on 4 March 1983, that the height of the tide at City Island, NY, will be 2.4 feet?	1228	1240	1244	1248	

3	508	A	Which statement about the chartlet is TRUE? (Soundings and heights are in meters)	There is a dangerous eddy southeast of Beito Island.	Maury lightship is visible for 17 miles.	The bottom to the south-southeast of the lightship is soft coral.	There is a 12-meter deep west of Beito Island and inside the 5-meter line.	D010NG
3	509	B	A line of position derived by radar range from an identified point on a coast will be a(n) _____.	straight line	arc	parabola	line parallel to the coast	
3	510	A	Which aid is NOT marked on a chart with a magenta circle?	Aero light	Radar station	Radar transponder beacon	Radio beacon	
3	511	D	A survey (special purpose mark) buoy _____.	must be lighted	may have a flashing red light	may have a fixed white light	None of the above	
3	512	C	On a gnomonic chart, a great circle track between Los Angeles and Brisbane will appear as a _____.	loxodromic curve	curved line concave to the equator	straight line	spiral approaching the poles as a limit	
3	513	B	You are radar scanning for a buoy fitted with a racon. Which radar screen represents the presentation you should expect on the PPI?	A	B	C	D	D017NG
3	514	D	What instrument measures wind velocity?	Hydrometer	Barometer	Psychrometer	Anemometer	
3	515	B	The small circle of the celestial sphere parallel to the celestial equator, and transcribed by the daily motion of the body, is called the _____.	hour circle of the body	parallel of declination	vertical circle of the body	parallel of altitude	
3	516	D	A hurricane moving northeast out of the Gulf passes west of your position. You could expect all of the following EXCEPT _____.	higher than normal swells	high winds	winds veering from south, through west, to northwest	gradual pressure gradient	
3	517	A	On 5 March 1983, at 0630 EST (ZD +5), what will be the predicted height of tide at Ocracoke, Ocracoke Inlet, NC?	0.1 foot	1.2 feet	1.9 feet	2.3 feet	
3	518	A	With regard to GPS, a civilian receiver may be capable of achieving the same accuracy as a military receiver if _____.	selective availability is set to zero	the satellites are all below 15° in elevation	your vessel is equipped with a Doppler receiver	the horizontal dilution of precision is high	
3	519	B	The chart of a beach area shows a very flat slope to the underwater beach bottom. What type of breakers can be expected when trying to land a boat on this beach?	Surging	Spilling	Plunging	Converging	
3	520	A	On charts of U.S. waters, a magenta marking is NOT used for marking a _____.	5-fathom curve	prohibited area	lighted buoy	radio beacon	
3	521	D	Which sextant has an index error of 2'10" on the arc?	A	B	C	D	D050NG
3	522	D	All straight lines represent great circle tracks on a chart based on a(n) _____.	Mercator projection	polyconic projection	orthographic projection	gnomonic projection	

3	523	B	A radar display in which North is always at the top of the screen is a(n) _____.	unstabilized display	stabilized display	composition display	relative display	
3	524	A	An anemometer on a moving vessel measures _____.	apparent wind speed only	true wind speed and true wind direction	true wind speed only	apparent wind speed and true wind direction	
3	525	D	In the celestial equator system of coordinates, what is comparable to latitude on the terrestrial sphere?	Altitude	Right ascension	Celestial meridians	Declination	
3	526	B	When a hurricane passes over colder water or land and loses its tropical characteristics, the storm becomes a(n) _____.	high pressure area	extratropical low-pressure system	tropical storm	easterly wave	
3	527	B	On 6 June 1983, at 1719 EST (ZD +5), what will be the predicted height of tide at Chester, PA?	0.8 feet(0.2 meters)	1.1 feet (0.3 meters)	3.5 feet (1.1 meters)	4.7 feet (1.4 meters)	
3	528	B	What should you expect when you encounter a tsunami in the open ocean?	Violent seas from mixed directions	No noticeable change from the existing sea state	Winds increasing to gale force from the northwest in the Northern Hemisphere	A major wave of extreme height and length	
3	529	B	In some river mouths and estuaries the incoming high-tide wave crest overtakes the preceding low-tide trough. This results in a wall of water proceeding upstream, and is called a _____.	seiche	bore	boundary wave	surge	
3	530	C	Under the U.S. Aids to Navigation System, a lighted buoy with a spherical topmark marks _____.	the port side of the channel	the position of underwater cables	safe water	a hazard to navigation	
3	531	C	You have been informed that dredging operations may be underway in your vicinity. Which buoy indicates the dredging area?	White buoy with a green top	White and international orange buoy	Yellow buoy	Yellow and black vertically-striped buoy	
3	532	B	In a river subject to tidal currents, the best time to dock a ship without the assistance of tugs is _____.	at high water	at slack water	at flood tide	when there is a following current	
3	533	A	You are using a radar in which your own ship is shown at the center, and the heading flash always points to 0°. If bearings are measured in relation to the flash, what type of bearings are produced?	Relative	True	Compass	Magnetic	

3	534	C	What is TRUE concerning an anemometer on a moving vessel?	It measures true wind speed.	It measures true wind speed and true wind direction.	It measures apparent wind speed.	It measures apparent wind speed and true wind direction.	
3	535	D	The tropical year differs from which year by 20 minutes?	Astronomical year	Natural year	Equinoctial year	Sidereal year	
3	536	A	You are enroute from Puerto Rico to New York. A hurricane makes up and is approaching. If the wind veers steadily, this indicates that your vessel is _____.	in the dangerous semicircle	in the navigable semicircle	directly in the path of the storm	in the storm center	
3	537	B	What will be the height of tide at Gargathy Neck, VA, at 1800 DST (ZD +4), on 16 August 1983?	2.3 feet	2.9 feet	3.3 feet	3.6 feet	
3	539	A	You are underway on course 050°T and your maximum speed is 13 knots. The eye of a hurricane bears 120°T, 100 miles from your position. The hurricane is moving towards 265°T at 25 knots. What course should you steer at 13 knots to have the maximum CPA?	324°T	306°T	299°T	276°T	
3	540	D	A white buoy with an orange rectangle on it is used to indicate _____.	danger	a controlled area	an exclusion area	general information	
3	541	C	A yellow buoy may mark a(n) _____.	wreck	shoal area	anchorage area	middle ground	
3	542	B	The only cylindrical chart projection widely used for navigation is the _____.	Lambert conformal	Mercator	azimuthal	gnomonic	
3	543	C	A radar display which is oriented, so that north is always at the top of the screen, is called a(n) _____.	relative display	composite display	stabilized display	unstabilized display	
3	544	B	The instrument most commonly used to gather the data for determining the relative humidity is the _____.	hydrometer	psychrometer	barometer	anemometer	
3	545	A	The arc of a great circle which passes through the body and celestial poles is part of the _____.	hour circle	diurnal circle	observer's meridian	altitude circle	D007NG
3	546	D	If it is impossible to avoid a hurricane in the Northern Hemisphere, the most favorable place to be when the storm passes is in _____.	the dangerous semicircle	the eye (center) of the storm	that half of the storm lying to the right of the storm's path	that half of the storm lying to the left of the storm's path	
3	547	A	On 2 November 1983, at 1630 EST (ZD +5), what will be the predicted height of tide at Fulton, FL?	2.8 feet (0.8 meters)	3.4 feet (1.0 meters)	4.2 feet (1.3 meters)	5.6 feet (1.7 meters)	
3	548	C	When the declination of the Moon is 0°12.5'S, you can expect some tidal currents in Gulf Coast ports to _____.	have either a double ebb or a double flood	become reversing currents	become weak and variable	exceed the predicted velocities	

3	549	D	On a working copy of a weather map, an occluded front is represented by which color line?	Red	Blue	Alternating red and blue	Purple	
3	550	A	The description "Racon" beside an illustration on a chart would mean a _____.	radar transponder beacon	radar conspicuous beacon	radar calibration beacon	circular radio beacon	
3	551	C	Spoil grounds, anchorage areas, cable areas, and military exercise areas are all marked by yellow buoys. Which special mark on the buoy will indicate the specific area you are in?	A topmark triangular in shape	A topmark spherical in shape	Lettering on the buoy	A topmark consisting of two cones with the points up	
3	552	A	A Mercator chart is a _____.	cylindrical projection	simple conic projection	polyconic projection	rectangular projection	
3	553	C	The beam width of your radar is 2°. The left tangent bearing of a small island, as observed on the PPI scope, is 056°pgc. If the gyro error is 2°E, what bearing would you plot on the chart?	052°	056°	059°	060°	
3	554	C	A sling psychrometer is a(n) _____.	type of cargo gear	instrument used in celestial navigation	instrument used to measure relative humidity	instrument used to measure specific gravity	
3	555	D	The letter D shown represents the _____.	geoidal horizon	celestial horizon	visible horizon	geometrical horizon	D006NG
3	556	A	In a tropical cyclone in the Northern Hemisphere, a vessel hove to with the wind shifting counterclockwise would be _____.	in the navigable semicircle	in the dangerous semicircle	directly in the path of the center	ahead of the storm	
3	557	A	Your vessel has a draft of 23 feet. On 23 June 1983 you wish to pass over a temporary obstruction near Beaufort, SC, that has a charted depth of 22 feet. Allowing for a safety margin of 3 feet, what is the earliest time after 1600 DST (ZD +4) that this passage can be made?	1750	1815	1855	1944	
3	558	A	A buoy bears 176°T at 3000 yards. What is the course to make good to leave the buoy 100 yards to starboard?	174°T	176°T	178°T	180°T	
3	559	D	A great circle crosses the equator at 162°E. It will also cross the equator at what other longitude?	62°E	126°W	162°W	18°W	
3	561	B	Buoys which mark dredging areas are painted _____.	black	yellow	green	red	
3	562	A	You wish to measure the distance on a Mercator chart between a point in latitude 42°30'N and a point in latitude 40°30'N. To measure 30 miles at a time you should set the points of the dividers at _____.	41°15' and 41°45'	41°45' and 42°15'	42°15' and 42°45'	42°00' and 42°30'	

3	563	C	Your radar has a beam width of 2°. The radar gyro bearing of the right tangent of an island is 316°. The gyro error is 1°E. Which true bearing should be plotted on the chart?	313°	314°	316°	317°	
3	564	D	A hygrometer is a device used for determining _____.	the absolute temperature	atmospheric pressure	wind velocity	relative humidity	
3	565	A	The letter B as shown represents the _____.	geoidal horizon	celestial horizon	visible horizon	sensible horizon	D006NG
3	566	D	You are attempting to locate your position relative to a hurricane in the Northern Hemisphere. If the wind direction remains steady, but with diminishing velocity, you are most likely _____.	in the right semicircle	in the left semicircle	on the storm track ahead of the center	on the storm track behind the center	
3	568	A	The chart of a beach area shows a very steep slope to the underwater beach bottom. Which type of breakers can be expected when trying to land a boat on this beach?	Surging	Converging	Spilling	Plunging	
3	569	B	A line of position formed by sighting two charted objects in line is called a(n) _____.	relative bearing	range line	track line	estimated position	
3	570	B	Chart legends printed in capital letters show that the associated landmark is _____.	inconspicuous	conspicuous	a government facility or station	a radio transmitter	
3	571	C	The Coast Guard Captain of the Port has excluded all traffic from a section of a port, while a regatta is taking place. The buoys marking this exclusion area will be _____.	nun- or can-shaped to conform to the overall direction of navigation	yellow	orange and white	marked with a spherical topmark	
3	572	B	You wish to measure the distance on a Mercator chart between a point in latitude 43°30'N and a point in latitude 40°30'N. To measure 30 miles at a time, you should set the points of the dividers at _____.	41°30' and 42°00'	41°45' and 42°15'	42°00' and 42°30'	42°15' and 42°45'	
3	574	B	If your mercurial barometer reads 30.50 inches (1033 millibars) and the temperature is 56°F (13°C), what is the correct reading at 55°N, 150°W?	30.42 inches (1030 millibars)	30.45 inches (1031 millibars)	30.50 inches (1032 millibars)	30.53 inches (1033 millibars)	
3	575	D	The horizontal plane, perpendicular to the zenith-nadir axis, that intersects with the celestial sphere and is tangent to the earth is called the _____.	celestial horizon	sensible horizon	visible horizon	geoidal horizon	

3	577	C	Your vessel has a draft of 24 feet. On 7 April 1983 you wish to pass over a temporary obstruction near Lovell Island, MA, that has a charted depth of 22 feet. Allowing for a safety margin of 3.1 feet under your keel, what is the earliest time after 0100 EST (ZD +5) that this passage can be made?	0248	0304	0342	0356	
3	578	B	At about GMT 1436, on 3 December 1981, the lower limb of the Moon is observed with a sextant having an index error of 2.5' on the arc. The height of eye is 32 feet. The sextant altitude (hs) is 3°38.8'. What is the observed altitude?	Ho 4°18.6'	Ho 4°29.1'	Ho 4°36.3'	Ho 4°42.2'	
3	579	C	Low pressure disturbances, which travel along the intertropical convergence zone, are called _____.	permanent waves	tidal waves	tropical waves	tropical storms	
3	581	D	The Captain of the Port has closed to navigation, and buoyed, a section of a harbor. These buoys would be painted _____.	red or green to conform with the other lateral aids	red and green horizontally-striped	solid yellow	white with orange markings	
3	582	A	Distance along a track line is measured on a Mercator chart by using the _____.	latitude scale near the middle of the track line	longitude scale near the middle of the track line	latitude scale at the mid-latitude of the chart	latitude or longitude scale at the middle of the scale	
3	583	B	The radar control used to reduce sea return at close ranges is the _____.	gain control	sensitivity time control	fast time constant	pulse length control	
3	584	A	The correction(s) which must be applied to an aneroid barometer reading include(s) _____.	height error	gravity error	temperature error	All of the above	
3	585	C	What great circle is always needed to form the astronomical triangle?	Celestial Equator	Prime Meridian	Celestial Meridian	Prime Vertical Circle	
3	586	B	The approximate distance to a storm center can be determined by noting the hourly rate of fall of the barometer. If the rate of fall is 0.08 - 0.12 inches, what is the approximate distance to the storm center?	50 to 80 miles	80 to 100 miles	100 to 150 miles	150 to 250 miles	
3	587	B	Your vessel has a draft of 34 feet. On 8 October 1983 you wish to pass over an obstruction near Jaffrey Point, NH, that has a charted depth of 31 feet. Allowing for a safety margin of 3 feet, what is the earliest time after 0900 DST (ZD +4) that this passage can be made?	0920	1029	1120	1159	

3	588	C	You are underway on course 050°T and your maximum speed is 10 knots. The eye of a hurricane bears 100°T, 90 miles from your position. The hurricane is moving towards 285°T at 19 knots. If you maneuver at 10 knots to avoid the hurricane, what could be the maximum CPA?	39 miles	45 miles	53 miles	59 miles	
3	589	D	What is the index error of sextant D?	7'10" on the arc	6'50" on the arc	3'00" on the arc	2'10" on the arc	D050NG
3	590	C	On 16 January 1981, you take a sight of a star. The sextant altitude (hs) is 4°33.0'. The temperature is -10°C, and the barometer reads 992 millibars. The height of eye is 42 feet. The index error is 1.9' off the arc. What is the observed altitude (Ho)?	4°10.2'	4°14.3'	4°17.0'	4°24.1'	
3	591	C	White lights may be found on _____.	special purpose buoys	preferred channel buoys	information and regulatory buoys	numbered buoys	
3	592	C	To measure distance on a Mercator chart between the parallels of LAT 34°30'N and LAT 31°30'N, which 30 mile scale should be used?	33°00'N to 33°30'N	32°30'N to 33°00'N	32°45'N to 33°15'N	32°15'N to 32°45'N	
3	593	B	Radar makes the most accurate determination of the _____.	direction of a target	distance to a target	size of a target	shape of a target	
3	594	B	Barometers are calibrated at a standard temperature of _____.	0°F	32°F	60°F	70°F	
3	595	A	In the navigational triangle, the angle at the elevated pole is the _____.	meridian angle	altitude	right ascension	azimuth angle	
3	596	D	Which condition would NOT indicate the approach of a tropical storm?	Long, high swells	Cirrus clouds	Halos about the Sun or Moon	Decrease in wind velocity	
3	597	B	You will be loading in Boston Harbor to a maximum draft of 32'06". The charted depth of an obstruction in the channel near Boston Light is 30 feet and you wish to have 3 feet of keel clearance. The steaming time from the pier to the obstruction is 01h 05m. What is the latest time (ZD +4) you can sail on 17 May 1983 and meet these requirements?	1610	1728	1821	2350	
3	598	D	A great circle crosses the equator at 141°E. It will also cross the equator at what other longitude?	180°E	41°E	141°W	39°W	
3	599	B	Magnetic compass deviation _____.	varies depending upon the bearing used	is the angular difference between magnetic north and compass north	is published on the compass rose on most nautical charts	is the angular difference between geographic and magnetic meridians	

3	600	C	The dangerous semicircle of a typhoon in the Southern Hemisphere is that area _____.	measured from due south clockwise 180°	measured from due south counterclockwise 180°	to the left of the storm's track	ahead of the typhoon measured from the storm's track to 90° on each side	
3	601	A	White and orange buoys, if lighted, show which color light?	White	Orange	Red	Alternating yellow and white	
3	602	B	Between the equator and the 46th parallel of latitude, there are 3099 meridional parts. How many degrees of equatorial longitude does 3099 meridional parts represent?	35°52'45"	51°39'00"	74°21'11"	82°36'12"	
3	603	A	What is the approximate wave length of an X Band Radar operating on a frequency of approximately 9500 MHz?	3 cm	10 cm	30 cm	100 cm	
3	604	D	Chronometer error may be found by _____.	radio time signal	comparison with a timepiece of known error	applying the prevailing chronometer rate to previous readings	All of the above	
3	605	C	Which is NOT a side of the celestial navigational triangle?	Co-latitude	Zenith distance	Altitude	Co-declination	
3	606	A	Early indications of the approach of a hurricane may be all of the following EXCEPT _____.	short confused swells	gradually increasing white clouds (mare's tails)	pumping barometer	continuous fine mist-like rain	
3	607	D	The charted depth alongside the south face of Mystic Pier, Charlestown, MA, is 35 feet. Your maximum draft is 38 feet. You wish to have 2 feet under the bottom, on a rising tide, when you go alongside to discharge a heavy lift. What is the earliest time after 0900 EST (ZD +5), on 2 February 1983, that you can dock?	1020	1050	1127	1137	
3	608	B	In which voyage, between two points, is the rhumb line distance NOT approximately the same as the great circle distance?	The two points are in low latitudes in the same hemisphere.	The two points are in high latitudes in the same hemisphere.	The two points are near the equator, but in different hemispheres.	One point is near the equator, one point is in a high latitude, and both are near the 180th meridian.	
3	609	A	A tropical wave is located 200 miles due west of your position, which is north of the equator. Where will the wave be in 24 hours?	Farther away to the west	Farther away to the east	In the same place	Closer and to the west	
3	610	C	The apparent wind's speed can be zero, but only when two conditions are present. One condition is that the true wind _____.	must be from dead ahead	speed must be zero	must be from dead astern	must be on the beam	

3	611	C	Information markers, when lighted, will display _____.	yellow lights	green lights	white lights	red lights	
3	612	B	Which statement is TRUE concerning a Mercator projection?	Degrees of longitude decrease in length as latitude increases.	The length of the meridians is increased to provide for equal expansion in all directions.	The mileage between the meridians is increased as the latitude increases.	All of the above	
3	613	B	Your radar indicates a target; however, there is no visible object at the point indicated. A large mountain, approximately 50 miles away on the same bearing as the target, is breaking the horizon. You should suspect the radar target is caused by _____.	a submerged submarine	ducting	sub-refraction	ionospheric skip waves	
3	614	B	A marine chronometer should be rewound once every _____.	12 hours	day	3 days	week	
3	615	B	The spinning motion of a planet around its axis is called _____.	revolution	rotation	orbit	space motion	
3	617	A	You are bound for the Chelsea docks in the Hudson River. The Captain wants to arrive at the docks at the first slack water on 28 July 1983. You are keeping daylight saving time. What time should you be at the docks?	0215	0530	0811	0911	
3	619	B	According to Buys Ballot's Law, when an observer in the Southern Hemisphere experiences a northwest wind, the center of the low pressure is located to the _____.	east-northeast	south-southwest	east-southeast	west-southwest	
3	620	A	Chart legends which indicate a conspicuous landmark are printed in _____.	capital letters	italics	boldface print	underlined letters	
3	621	B	Navigational marks used for informational or regulatory purposes are _____.	solid yellow	white with orange geometric shapes	red and white vertically-striped	green and red horizontally-banded	
3	623	B	An indirect radar echo is caused by a reflection of the main lobe of the radar beam off the observer's vessel. Which of the following is NOT a characteristic of indirect echoes?	Their bearing is almost constant, even when the true bearing of the contact changes appreciably.	They always appear on a bearing of 90°From the true bearing of the contact.	The indirect echoes usually appear in shadow sectors.	When plotted, their movements are usually abnormal.	

3	624	A	When using a mechanical (windup type) marine chronometer, how often should it be reset?	Only when it is overhauled	Whenever the chronometer error exceeds approximately four minutes	At the start of each voyage	If the chronometer rate changes from gaining to losing or vice versa	
3	625	C	The center of a circle of equal altitude, plotted on the surface of the Earth, is the _____.	dead reckoning position of the observer	assumed position of the observer	geographical position of the body	assumed position of the body	
3	626	D	What indicates the arrival of a hurricane within 24 to 36 hours?	The normal swell becoming lower and from a steady direction	Long bands of nimbostratus clouds radiating from a point over the horizon	The barometer drops 2 millibars between 1000 and 1600	Unusually good weather with above average pressures followed by a slow fall of 4 millibars in six hours	
3	627	C	You are on a coastwise voyage bound for Marcus Hook, PA. Your speed is 15 knots. You wish to use the flood tide to facilitate docking starboard side to, heading seaward. To have the most favorable tide throughout, you should time your arrival at the entrance to Delaware Bay _____.	for 1 hour before flood begins	for 1 hour after flood begins	for 3 hours after flood begins	for 1 hour before ebb begins	
3	629	D	The rise and fall of the ocean's surface due to a distant storm is known as _____.	sea	waves	fetch	swell	
3	630	A	What kind of weather would you expect to accompany the passage of a tropical wave?	Heavy rain and cloudiness	Good weather	A tropical storm	Dense fog	
3	631	C	A light characteristic of composite group flashing indicates that there is a(n) _____.	sharp turn in the channel	narrowing in the channel at that point	junction in the channel	obstruction that must be left to port	
3	633	A	You have another ship overtaking you close aboard to starboard. You have 3 radar targets bearing 090° relative at ranges of .5 mile, 1 mile, and 1.5 miles. In this case, the unwanted echoes are called _____.	multiple echoes	spoking	indirect echoes	side-lobe echoes	
3	634	C	What will cause the ARPA to emit a visual alarm, audible alarm, or both?	An acquired target entering into a guard zone	A tracked target lost for one radar scan	A tracked target entering your preset CPA-TCPA limits	A target being initially detected within a guard zone	
3	635	B	A low HDOP (Horizontal Dilution of Precision) number such as 2 indicates a _____.	poor fix	good fix	poor signal quality	good signal quality	
3	636	B	Tropical cyclones are classified by form and intensity. Which system does not have closed isobars?	Hurricane	Tropical disturbance	Tropical depression	Cyclone	

3	637	D	Your draft is 24 feet. You wish to pass over an obstruction near Lovell Island, MA, on 6 May 1983. The charted depth is 22 feet. Allowing a safety margin of 3.0 feet, what is the earliest time after 0200 DST (ZD +4) that this passage can be made?	0215	0245	0310	0347	
3	638	B	Swell is the rise and fall of the ocean's surface due to _____.	fetch	distant winds	local storms	the pull of the moon	
3	639	A	In the Northern Hemisphere, what type of cloud formations would you expect to see to the west of an approaching tropical wave?	Cumulus clouds lined up in rows extending in a northeast to southwest direction	High altostratus clouds in the morning hours	Cirrostratus clouds lined up in rows extending in a northeast to southwest direction	Cirrostratus clouds lined up in rows extending in a north to south direction	
3	641	A	Buoys which mark isolated dangers are painted with alternating _____.	red and black bands	green and black bands	red and white stripes	green and white bands	
3	642	C	Which government agency publishes the U.S. Coast Pilot?	Army Corps of Engineers	National Geospatial-Intelligence Agency	National Ocean Service	U.S. Coast Guard	
3	643	C	When using the radar for navigating _____.	the best fix is obtained by using a tangent bearing and a range	and using two radar ranges for a fix, the objects of the ranges should be close to reciprocal bearings	and using ranges, the most rapidly changing range should be measured last	and crossing a radar range of one object with the visual bearing of a second object, the two objects should be 80° to 110° apart	
3	644	A	Your ARPA has been tracking a target and has generated the targets course and speed. The radar did not receive a target echo on its last two scans due to the weather. What should you expect under these circumstances?	The ARPA will generate data as if the target was still being tracked by radar.	The ARPA will give an audible and/or visual lost target alarm.	The ARPA will generate data based on sea return echoes from the vicinity where the target was lost.	The ARPA has lost all "memory" of the target and must recompute the target data.	
3	645	B	The arc of an hour circle between the celestial equator and a point on the celestial sphere, measured northward or southward through 90°, is the _____.	altitude	declination	latitude	azimuth angle	
3	646	D	You have determined that you are in the right semicircle of a tropical cyclone in the Northern Hemisphere. What action should you take to avoid the storm?	Place the wind on the starboard quarter and hold that course.	Place the wind on the port quarter and hold that course.	Place the wind on the port bow and hold that course.	Place the wind on the starboard bow and hold that course.	

3	647	C	You will enter Argentia, Newfoundland, at 1200 on 5 October 1983, while keeping zone description +3 on the ship's clocks. What will be the height of tide at this time (based on the Canadian chart datum)?	0.5 feet	1.2 feet	2.1 feet	3.4 feet	
3	648	B	Weather systems in the middle latitudes generally travel from _____.	north to south	west to east	east to west	None of the above	
3	649	C	You are on course 226°T. In order to check the latitude of your vessel, you should observe a celestial body on which bearing?	226°	270°	000°	026°	
3	650	C	What classification of tropical cyclone would have closed isobars, counter clockwise rotary circulation, and sustained winds between 34 and 63 knots?	A tropical disturbance	A tropical depression	A tropical storm	A hurricane	
3	651	B	Which topmark shown identifies an isolated danger?	A	B	C	D	D023NG
3	652	A	What agency of the U.S. Government issues charts of U.S. waters and Coast Pilots?	National Ocean Service	National Imagery and Mapping Agency	U.S. Coast Guard	U.S. Naval Observatory	
3	653	B	You have been observing your radar screen and notice that a contact on the screen has remained in the same position, relative to you, for several minutes. Your vessel is making 10 knots through the water. Which statement is TRUE?	The contact is dead in the water.	The contact is on the same course and speed as your vessel.	The contact is on a reciprocal course at the same speed as your vessel.	The radar is showing false echoes and is probably defective.	
3	654	D	Your ARPA has automatic speed inputs from the log. Due to currents, the log is indicating a faster speed than the speed over the ground. What should you expect under these circumstances?	The generated CPA will be less than the actual CPA.	The generated TCPA will be later than the actual TCPA.	The range of initial target acquisition will be less than normal.	The targets true course vector will be in error.	
3	655	A	The equator is _____.	the primary great circle of the Earth perpendicular to the axis	the line to which all celestial observations are reduced	the line from which a celestial body's altitude is measured	All of the above	
3	656	A	In the Northern Hemisphere you are caught in the dangerous semicircle with plenty of sea room available. The best course of action is to bring the wind on the _____.	starboard bow and make as much headway as possible	starboard quarter, and make as much headway as possible	port quarter, and make as much headway as possible	port bow, and make as much headway as possible	
3	657	B	Current refers to the _____.	vertical movement of the water	horizontal movement of the water	density changes in the water	None of the above	

3	658	C	Monsoons are characterized by _____.	light, variable winds with little or no humidity	strong, gusty winds that blow from the same general direction all year	steady winds that reverse direction semiannually	strong, cyclonic winds that change direction to conform to the passage of an extreme low pressure system	
3	660	D	What is the length of a nautical mile?	1,850 meters	5,280 feet	1,760 yards	6,076 feet	
3	661	D	Under the IALA Buoyage Systems, safe water marks may show a _____.	composite group-flashing, Fl(2 + 1), red light	composite group-flashing, Fl(2 + 1), green light	quick-flashing, Q(9)15s, white light	white Morse (A) light	
3	662	A	What publication contains descriptions of the coast line, buoyage systems, weather conditions, port facilities, and navigation instructions for the United States and its possessions?	Coast Pilots	Sailing Directions	Port Index	Light List	
3	663	A	You are underway at 10 knots. At 1800 you note a radar contact dead ahead at a range of 10 miles. At 1812 the contact is dead ahead at a range of 8 miles. The estimated speed of the contact is _____.	dead in the water	5 knots	10 knots	15 knots	
3	664	B	Which ARPA data should you use in order to determine if a close quarters situation will develop with a target vessel?	Set and drift of the current	Relative track information	Predicted time of CPA	Initial range of acquisition	
3	665	C	17 degrees of latitude is equal to _____.	68 miles	510 miles	1020 miles	4080 miles	
3	666	B	In the Northern Hemisphere, your vessel is believed to be in the direct path of a hurricane, and plenty of sea room is available. The best course of action is to bring the wind on the _____.	starboard bow, note the course, and head in that direction	starboard quarter, note the course, and head in that direction	port quarter, note the course, and head in that direction	port bow, note the course, and head in that direction	
3	667	B	The navigable semicircle of a typhoon in the Southern Hemisphere is the area _____.	behind the typhoon, measured from 90° to 180°From each side of the storm's track	to the right of the storm's track	ahead of the typhoon, measured from the storm's track to 90° on each side	measured from due south, counterclockwise 180°	
3	668	D	You are enroute to assist vessel A. Vessel A is underway at 6 knots on course 133°T, and bears 042° at 105 miles from you. What is the course to steer at 10 knots to intercept vessel A?	063°	068°	073°	079°	

3	669	B	It is desirable that a vessel encountering hurricane or typhoon conditions sends weather reports to the closest meteorological service at least every _____.	hour	3 hours	6 hours	8 hours	
3	670	B	A NAVAREA warning carries the following number; 1986/87 (11). Which statement is TRUE?	The warning was issued in 1986, the 87th sequentially numbered warning and broadcast 11 times.	This is warning number 1986 issued in 1987, and it affects sub-region 11.	This warning is valid in 1986 and 1987 and is the eleventh two-year warning.	The subject of this warning first appeared in 1986; this warning is in 1987 and is the eleventh on this topic.	
3	671	C	You sight a buoy fitted with a double-sphere topmark. If sighted at night, this buoy would show a _____.	quick-flashing red light	quick-flashing green light	flashing white light showing a group of two flashes	flashing red light showing a group of three flashes	
3	672	C	You are planning to enter an unfamiliar U.S. port. Which publication provides information about channel depths, dangers, obstructions, anchorages, and marine facilities available in that port?	American Practical Navigator	Notice to Mariners	Coast Pilot	Sailing Directions	
3	673	D	You are underway at 5 knots and see on your radar a contact 10 miles directly astern of you. 12 minutes later, the contact is 8 miles directly astern of you. What is the estimated speed of the contact?	Dead in the water	1 knot	10 knots	15 knots	
3	674	B	When using an ARPA, what should you consider in order to evaluate the information displayed?	The target vessel's generated course and speed are based solely on radar inputs.	Navigational constraints may require a target vessel to change course.	The trial maneuver feature will automatically determine a course that will clear all targets.	You cannot determine if a small target has been lost due to sea return.	
3	675	B	15° of latitude is equal to _____.	600 miles	900 miles	1200 miles	1500 miles	
3	676	C	If you are caught in the left semicircle of a tropical storm, in the Southern Hemisphere, you should bring the wind _____.	on the starboard quarter, hold course and make as much way as possible	2 points on the port quarter, and make as much way as possible	on the port bow, and make as much way as possible	dead ahead and heave to	
3	677	A	A swift current occurring in a narrow passage connecting two large bodies of water, which is produced by the continuously changing difference in height of tide at the two ends of the passage, is called a _____.	hydraulic current	rectilinear current	rotary current	harmonic current	

3	678	B	On 25 December 1981 you observe the Sun's lower limb. The sextant altitude (hs) is 4°06.9'. The height of eye is 47 feet and the index error is 1.6' on the arc. The temperature is 19°F. and the barometer reads 1030.8 millibars. What is the observed altitude (Ho)?	3°57.4'	4°01.9'	4°02.5'	4°03.4'	
3	679	B	A tropical wave is usually preceded by _____.	tropical storms	good weather	heavy rain and cloudiness	heavy seas	
3	680	D	The apparent wind's speed can be zero, but only when two conditions are present. One condition is that the true _____.	wind must be on the beam	wind's speed must be zero	wind must be from dead ahead	wind's speed equals the ship's speed	
3	681	D	You sight a spar buoy with the top mark shown in the illustration. You must _____.	pass to the east of the buoy	pass to the south of the buoy	pass to the north of the buoy	keep well clear of the buoy and pass on either side	D027NG
3	682	B	Which table is NOT found in the U.S. Coast Pilots?	Climatological table	Luminous range table	Meteorological table	Coastwise distance table	
3	683	C	A radar contact will remain stationary on a relative motion radar display only when it is _____.	on the same course as your vessel	at the same speed as your vessel	on the same course and speed as your vessel	on a reciprocal course at the same speed as your vessel	
3	684	D	The ARPA may swap targets when automatically tracking if two targets _____.	are tracked on reciprocal bearings	are tracked at the same range	are tracked on the same bearing	pass close together	
3	685	D	Thirty-two meters equals _____.	17.50 feet	58.52 feet	96.00 feet	104.99 feet	
3	686	B	The pressure gradient between the horse latitudes and doldrums runs _____.	east to west	north to south	northeast to southwest	northwest to southeast	
3	687	B	The drift and set of tidal, river, and ocean currents refer to the _____.	position and area of the current	speed and direction toward which the current flows	type and characteristic of the current's flow	None of the above	
3	688	A	In mid-ocean, the characteristics of a wave are determined by three factors. What is NOT one of these factors?	Effect of the moon's gravity	Fetch	Wind velocity	Length of time a wind has been blowing	
3	689	A	What is the index error of sextant C?	0'20" on the arc	1'00" on the arc	2'00" on the arc	5'10" on the arc	D050NG
3	690	C	What level of development of a tropical cyclone has a hundred mile radius of circulation, gale force winds, less than 990 millibars of pressure and vertically formed cumulonimbus clouds?	A tropical disturbance	A tropical depression	A tropical storm	A typhoon	
3	691	A	Of the four light characteristics shown which one does NOT represent a safe water mark of the IALA Buoyage System?	A	B	C	D	D019NG

3	692	C	Which publication should you check for complete information on Puget Sound weather conditions?	Sailing Directions	Light List	Coast Pilot	Chart of the area	
3	693	B	Which general statement concerning radar is FALSE?	Raising the antenna height increases the radar range.	The ability of radar to detect objects is unaffected by weather conditions.	Radar bearings are less accurate than radar ranges.	Radar should be checked regularly during clear weather to ensure that it is operating properly.	
3	694	B	Your ARPA has two guard zones. What is the purpose of the inner guard zone?	Alert the watch officer that a vessel is approaching the preset CPA limit	Warn of small targets that are initially detected closer than the outer guard zone	Guard against target loss during critical maneuvering situations	Sound an alarm for targets first detected within the zone	
3	695	A	An azimuth angle for a body is measured from the _____.	observer's meridian	Greenwich meridian	body's meridian	zenith distance	
3	696	D	The diurnal pressure variation is most noticeable in the _____.	polar regions	horse latitudes	roaring forties	doldrums	
3	697	D	The set of the current is the _____.	speed of the current at a particular time	maximum speed of the current	direction from which the current flows	direction in which the current flows	
3	698	A	You are in LONG 165°E, zone time at 0400, 1 November 1981. What is the zone time and date in LONG 165°W?	0600, 31 October	1800, 31 October	1800, 1 November	0600, 1 November	
3	700	C	You are enroute to Savannah, GA, from Recife, Brazil. There is a strong N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	smoother seas and warmer water	long swells	steeper waves, closer together	cirrus clouds	
3	701	C	In the IALA Buoyage System, buoys with alternating red and green horizontal bands are used to indicate _____.	fishing areas	spoil grounds	the preferred channel	isolated dangers	
3	702	A	Which publication contains information on navigation regulations, landmarks, channels, anchorages, tides, currents, and clearances of bridges for Chesapeake Bay?	Coast Pilot	Light List	Sailing Directions	Pilot Charts	
3	703	D	Which statement concerning the operation of radar in fog is TRUE?	Radar ranges are less accurate in fog.	Navigation buoys will always show up on radar.	A sandy beach will show up clearer on radar than a rocky cliff.	Small wooden boats may not show up on radar.	

3	704	B	What is TRUE of the history display of a target's past positions on an ARPA?	It provides a graphic display to emphasize which vessel is on a collision course.	In the true presentation, it provides a quick visual check to determine if a vessel has changed course.	The display is one of the primary inputs and must be in use when using the trial maneuver capability.	It provides a graphic display of a target vessel's relative course, speed, and CPA.	
3	705	B	The precession of the equinoxes occurs in a(n) _____.	easterly direction	westerly direction	northerly direction	southerly direction	
3	706	C	A steep barometric gradient indicates _____.	calms	light winds	strong winds	precipitation	
3	707	D	Set of the current is _____.	its velocity in knots	direction from which it flows	estimated current	direction towards which it flows	
3	708	C	Which statement about Radio Navigational Warning Broadcasts is TRUE?	Radio navigational warnings are valid for 10 days, unless cancelled earlier.	NAVAREA warnings cover coastal areas only, while HYDROLANTS or HYDROPACS cover entire ocean areas.	Radio navigational warnings issued by NGA (NIMA) are published in the Daily Memorandum and the Notice to Mariners.	HYDROLANTS and HYDROPACS cover the same geographical areas as NAVAREA warnings, but are for the use of military vessels only.	
3	709	B	A sea breeze is a wind _____.	that blows towards the sea at night	that blows towards an island during the day	caused by cold air descending a coastal incline	caused by the distant approach of a hurricane	
3	710	B	What is the FIRST sign of the existence of a well developed tropical cyclone?	Gale force winds from the north	An unusually long ocean swell	Steep, short-period waves and light wind	Thunderstorms and higher than usual humidity	
3	711	A	In the IALA Maritime Buoyage System, a red and white vertically-striped buoy is used as a(n) _____.	safe water mark	cardinal mark	isolated danger mark	special mark not primarily used for navigation	
3	712	D	Information about the pilotage available at Miami harbor may best be obtained from which publication?	World Port Index	Sailing Directions	Pilot Chart	United States Coast Pilot	
3	713	C	The closest point of approach (CPA) of a contact on a relative motion radar may be determined _____.	immediately when the contact is noted on radar	only if the radar scope is watched constantly	after the contact has been marked at least twice	by an occasional glance at the radar	
3	714	C	When using the ARPA in heavy rain, which action should you take?	Increase the radar gain to pick up weak echoes through the rain.	Increase the STC setting to reduce close-in spurious signals.	Navigate as though the effective range of the radar has been reduced.	Increase the range of the inner and outer guard rings.	

3	715	A	The length of the year with respect to the vernal equinox is the _____.	tropical year	sidereal year	anomalistic year	All of the above	
3	716	C	Standard atmospheric pressure in inches of mercury is _____.	30.00	28.92	29.92	29.00	
3	717	A	Which term refers to the direction a current is flowing?	Set	Drift	Vector direction	Stand	
3	718	A	You are to sail from Elizabethport, NJ, on 22 May 1983 with a maximum draft of 28 feet. You will pass over an obstruction in the channel near Sandy Hook that has a charted depth of 27 feet. The steaming time from Elizabethport to the obstruction is 1h 40m. What is the earliest time (ZD +4) you can sail on the afternoon of 22 May and pass over the obstruction with 3 feet of clearance?	1407	1331	1303	1242	
3	719	B	You are on course 209°T. In order to check the longitude of your vessel, you should observe a celestial body on which bearing?	209°	270°	299°	000°	
3	720	A	Which change in the condition of the seas could indicate the formation of a tropical storm or hurricane several hundred miles from your location?	A long swell from an unusual direction	A lengthy lull in the wind and seas	Large seas coming from different directions	A brisk chop from the southeast	
3	721	B	Under the IALA Buoyage System, a red and white vertically-striped buoy would NOT indicate _____.	a landfall	the extreme end of an islet	a mid-channel	a center line	
3	722	C	Which publication would describe the explosive anchorages in the ports on the east coast of the United States?	Sailing Directions	Pilot Rules for Inland Waters	Coast Pilot	Notice to Mariners	
3	723	C	If there is any doubt as to the proper operation of a radar, which statement is TRUE?	Only a radar expert can determine if the radar is operating.	All radars have indicator lights and alarms to signal improper operation.	A radar range compared to the actual range of a known object can be used to check the operation of the radar.	The radar resolution detector must be energized to check the radar.	
3	724	C	Which statement concerning GPS is TRUE?	It cannot be used in all parts of the world.	There are 12 functioning GPS satellites at present.	It may be suspended without warning.	Two position lines are used to give a 2D fix.	
3	725	A	The First Point of Aries is the position of the Sun on the celestial sphere on or about _____.	March 21	June 21	September 21	December 21	

3	726	D	Atmospheric pressure at sea level is equal to _____.	14.7 pounds per square inch	29.92 inches of mercury	1013.25 millibars	All of the above	
3	727	C	What is an ebb current?	A current at minimum flow	A current coming in	A current going out	A current at maximum flow	
3	728	B	In the Bay of Fundy, during twilight, you a take sight of Mars. The sextant altitude (hs) is 03°35.5'. Your height of eye is 32 feet and there is no index error. The air temperature is -10°C and the barometer reads 1010 millibars. What is the observed altitude (Ho)?	03°14.5'	03°15.8'	03°16.2'	03°28.8'	
3	729	B	The doldrums are characterized by _____.	steady, light to moderate winds	frequent calms	clear skies	low humidity	
3	730	C	In the Northern Hemisphere, the largest waves or swells created by a typhoon or hurricane will be located _____.	in the southeast quadrant of the storm	directly behind the storm center	forward and to the right of its course	behind and to the left of its course	
3	731	C	Under the IALA Buoyage Systems, a vertically-striped buoy may be striped red and _____.	green	black	white	yellow	
3	732	B	What publication has information on the climate, distances, navigation regulations, outstanding landmarks, channels and anchorages of Long Island Sound?	Light List	Coast Pilot	Sailing Directions	Pilot Chart	
3	733	D	What would give the best radar echo?	The beam of a three masted sailing vessel with all sails set.	A 110-foot fishing vessel with a radar reflector in its rigging.	A 300-foot tanker, bow on.	A 600-foot freighter, beam on.	
3	734	B	You are approaching Chatham Strait from the south in foggy weather. You have Coronation Island and Hazy Islands on the radar. Suddenly the radar malfunctions. You then resort to using whistle echoes to determine your distance off Coronation Island. Your stopwatch reads 16.3 seconds for the echo to be heard. How far are you off Coronation Island?	1.0 mile	1.5 miles	2.0 miles	2.5 miles	
3	735	B	The period of the Earth's revolution from perihelion to perihelion is the _____.	astronomical year	anomalistic year	solar year	sidereal year	
3	736	C	A line on a weather chart connecting places which have the same barometric pressure is called an _____.	isotherm	isallobar	isobar	isotope	

3	737	C	What describes an ebb current?	Horizontal movement of the water away from the land following low tide	Horizontal movement of the water toward the land following low tide	Horizontal movement of the water away from the land following high tide	Horizontal movement of the water toward the land following high tide	
3	738	C	Most GPS receivers use the Doppler shift of the carrier phase to compute _____.	Latitude	Longitude	Speed	Time	
3	739	A	The upper vertex of a great circle track is in LONG 156°00'E. Sailing eastward, the great circle track will cross the equator in LONG _____.	114°00'W	110°00'W	66°00'W	66°00'E	
3	740	A	A very light breeze that causes ripples on a small area of still water is a _____.	cat's paw	hog's breath	williwaw	chinook	
3	741	D	What is the light phase characteristic of a lighted isolated-danger mark?	Interrupted quick flashing	Very quick flashing	Long flashing	Group flashing	
3	742	C	You are preparing to take a tow from San Diego to Portland, OR. Good seamanship would require that you have on board, available for reference and use, all of the following EXCEPT the _____.	Coast Pilot	harbor and coastal charts for ports of refuge enroute	Sailing Directions (Enroute)	Light List	
3	744	D	A hand held instrument used to measure distances between objects and the ship is a _____.	vernier	psychrometer	hygrometer	stadimeter	
3	745	B	Retrograde motion is the _____.	movement of the points of intersection of the planes of the ecliptic and the equator	apparent westerly motion of a planet with respect to stars	movement of a superior planet in its orbit about the Sun	movement of the celestial north pole in an elliptical pattern in space	
3	746	C	Lines drawn through points on the Earth having the same atmospheric pressure are known as _____.	isothermal	millibars	isobars	seismics	
3	747	B	The movement of water away from the shore or downstream is called a(n) _____.	reversing current	ebb current	flood current	slack current	
3	748	B	You are steaming west in the South Atlantic in an extratropical cyclonic storm, and the wind is dead ahead. According to the law of Buys Ballot, the center of low pressure lies _____.	to the north of you	to the south of you	dead ahead of you	dead astern of you	
3	750	B	On a working copy of a weather map, a cold front is represented by what color line?	Red	Blue	Alternating red and blue	Purple	
3	751	D	Under the IALA Buoyage Systems, a yellow buoy may mark _____.	fish net areas	spoil areas	military exercise zones	All of the above	

3	752	D	Which publication would NOT be used on a voyage from Houston to New York?	Coast Pilot	Light List	Radio Navigational Aids	Sailing Directions (Enroute)	
3	754	D	Deviation in a compass is caused by the _____.	vessel's geographic position	vessel's heading	earth's magnetic field	influence of the magnetic materials of the vessel	
3	755	D	The sidereal day begins when the _____.	Sun is over the lower branch of the reference meridian	Sun is over the upper branch of the reference meridian	first point of Aries is over the lower branch of the reference meridian	first point of Aries is over the upper branch of the reference meridian	
3	756	B	What is a common unit of measure for atmospheric pressure?	centimeters	Inches	Degrees	Feet	
3	757	A	The term "flood current" refers to that time when the water _____.	is flowing towards the land	is moving towards the ocean	level is not changing	level is rising because of heavy rains	
3	759	B	At 0000 you fix your position and plot a new DR track line. At 0200 you again fix your position and it is 0.5 mile west of your DR. Which statement is TRUE?	The set is 090°, drift 0.5 knot.	The set is 270°, drift 0.25 knot.	The set is 270°, drift 0.5 knot.	The set is 270°, drift 1.0 knot.	
3	760	C	As a vessel changes course to starboard, the compass card in a magnetic compass _____.	first turns to starboard then counterclockwise to port	also turns to starboard	remains aligned with compass north	turns counterclockwise to port	
3	761	D	Under the IALA Buoyage Systems, a safe water mark may NOT _____.	be spherical	display a white light	be lettered	show a quick flashing light	
3	762	D	Chart correction information is NOT disseminated through the _____.	Summary of Corrections	Local Notice to Mariners	Daily Memorandum	Chart Correction Card	
3	763	D	Time signals broadcast by WWV and WWVH are transmitted _____.	every 15 minutes	every 30 minutes	every hour	continuously throughout day	
3	764	D	Magnetic variation changes with a change in _____.	the vessel's heading	sea conditions	seasons	the vessel's position	
3	765	B	Diurnal aberration is due to _____.	motion of the Earth in its orbit	rotation of the Earth on its axis	the body's orbital motion during the time required for its light to reach the Earth	a false horizon	
3	766	D	Which position includes the effects of wind and current?	Dead reckoning position	Leeway position	Set position	Estimated position	

3	767	B	What describes a flood current?	Horizontal movement of the water toward the land after high tide	Horizontal movement of the water toward the land after low tide	Horizontal movement of the water away from the land following high tide	Horizontal movement of the water away from the land following low tide	
3	768	A	The wind velocity is higher in the dangerous semicircle of a tropical cyclone because of the _____.	wind circulation and forward motion of the storm	extension of the low pressure ridge	recurvature effect	direction of circulation and pressure gradient	
3	769	B	What does not contribute to the commercial GPS receiver position error?	Satellite clock	Ship's speed	Atmospheric/Ionospheric propagation	Satellites' orbits	
3	770	A	You are plotting a running fix in an area where there is a determinable current. How should this current be treated in determining the position?	The course and speed made good should be determined and used to advance the LOP.	The drift should be added to the ship's speed.	The current should be ignored.	The set should be applied to the second bearing.	
3	771	A	Under the IALA Buoyage Systems, a spherical buoy will mark the _____.	safe water	port side of the channel	a hazard to navigation	the position of an underwater cable	
3	772	D	You are hove to in a hurricane on a heading of 328°T. The wind is from 030° true at 119 knots. How should this be encoded on the weather report form under Nddff.	80312	83011	83099	80399	D041NG
3	773	A	What is the basic principle of the magnetic compass?	Magnetic materials of the same polarity repel each other and those of opposite polarity attract.	The Earth's magnetic lines of force are parallel to the surface of the Earth.	Magnetic meridians connect points of equal magnetic variation.	The compass needle(s) will, when properly compensated, lie parallel to the isogonic lines of the Earth.	
3	774	C	Variation is not constant; it is different with every change in _____.	speed	vessel heading	geographical location	cargo	
3	775	D	A sidereal day is shorter than a solar day. This difference is due to _____.	irregularities in the daily rotational rate of the Sun	the space motion of the solar system	the precession of the equinoxes	the use of different reference points	
3	776	C	You are navigating in pilotage waters using running fixes. The maximum time between fixes should be about _____.	4 hours	1 hour	30 minutes	5 minutes	
3	777	A	With respect to a reversing current, slack water occurs when there is _____.	little or no horizontal motion of the water	little or no vertical motion of the water	a weak ebb or flood current	when winds cause water to back up in a river mouth	

3	778	D	The navigable semicircle of a hurricane in the Northern Hemisphere is that area of the storm measured _____.	from true north clockwise to 180°T	from true north counterclockwise to 180°T	from the bow counterclockwise to 180° relative	from the direction of the storm's movement counterclockwise 180°	
3	779	C	Which sextant shown has an index error of 0'20" on the arc?	A	B	C	D	D050NG
3	780	C	Apparent wind speed blowing across your vessel while underway can be measured by a(n) _____.	barometer	wind vane	anemometer	thermometer	
3	781	C	The IALA Buoyage Systems do NOT apply to _____.	the sides and centerlines of navigable channels	natural dangers and other obstructions, such as wrecks	lighthouses and lightships	areas in which navigation may be subject to regulation	
3	782	A	Mariners are FIRST warned of serious defects or important changes to aids to navigation by means of _____.	marine broadcast Notice to Mariners	Weekly Notices to Mariners	corrected editions of charts	Light Lists	
3	783	B	Magnetism which is present only when the material is under the influence of an external field is called _____.	permanent magnetism	induced magnetism	residual magnetism	terrestrial magnetism	
3	784	C	Variation is the angular measurement between _____.	compass north and magnetic north	compass north and true north	magnetic meridian and the geographic meridian	your vessel's heading and the magnetic meridian	
3	785	D	An amplitude of the Sun in high latitudes _____.	is most accurate before sunrise	is most accurate after sunset	should only be observed when the Sun's lower limb is above the horizon	is most accurate when the Sun's center is observed on the visible horizon	
3	786	C	The greater the pressure difference between a high and a low pressure center, the _____.	dryer the air mass will be	cooler the temperature will be	greater the force of the wind will be	warmer the temperature will be	
3	787	A	You are on a voyage from New Orleans to Boston. When navigating off the Florida coast, you will get the greatest benefit from the Gulf Stream if you navigate _____.	about 45 miles east of Cape Canaveral	about 25 miles east of Daytona Beach	along the 50-fathom curve	close inshore between Fowey Rocks and Jupiter Inlet	
3	789	A	The dangerous semicircle of a hurricane in the Northern Hemisphere is that area of the storm _____.	to the right of the storm's track	measured from true north clockwise to 180°T	measured from true north counterclockwise to 180°T	between the ship's heading and the bearing to the eye	
3	791	C	Under the IALA Buoyage Systems, the topmark of a red and white vertically-striped buoy shall be _____.	X-shaped	two black spheres	a single red sphere	a single red cone	

3	792	C	Information about temporary, short term changes affecting the safety of navigation in U.S. waters is distributed to navigational interests by the _____.	Daily Memorandum	HYDROLANT or HYDROPAC broadcasts	Local Notice to Mariners	Summary of Corrections	
3	793	D	The permanent magnetism of a vessel may change in strength due to _____.	a collision with another vessel	being moored on a constant heading for a long period of time	being struck by lightning	All of the above	
3	795	B	The path of a celestial body during its daily apparent revolution around the Earth is called its _____.	ecliptic	diurnal circle	altitude circle	circle of position	
3	796	B	Cyclones tend to move _____.	perpendicular to the isobars in their warm sectors	parallel to the isobars in their warm sectors	parallel to the line of the cold front	perpendicular to the line of the cold front	
3	797	D	Which statement is TRUE concerning the current of the Gulf Stream?	It reaches its daily maximum speed a few hours before the transit of the Moon.	It is slower at the time of neap tides than at spring tides.	When the Moon is at its maximum declination the stream is narrower than when the Moon is on the equator.	Variations in the trade winds affect the current.	
3	798	A	A HYDROLANT warning would normally be sent for all of the following EXCEPT _____.	extinguishment of Robbins Reef Light in New York City's Upper Bay	unexploded ordinance in ocean waters at a depth of 78 fathoms (143 meters)	the presence of a large unwieldy tow in congested offshore water	a report of an overdue ship	
3	799	C	In Region A of the IALA Buoyage System, when entering from seaward, the starboard side of a channel would be marked by a _____.	green can buoy	red can buoy	green conical buoy	red conical buoy	
3	800	A	You are to sail from Elizabethport, NJ, on 17 November 1983 with a maximum draft of 27 feet. You will pass over an obstruction in the channel near Sandy Hook that has a charted depth of 26 feet. The steaming time from Elizabethport to the obstruction is 1h 50m. What is the earliest time (ZD +5) you can sail on 17 November and pass over the obstruction with 2 feet of clearance?	0056	0124	0154	0218	
3	801	A	You are entering an African port and see ahead of you a red can-shaped buoy. What action should you take?	Alter course to leave the buoy to port	Alter course to leave the buoy to starboard	Pass the buoy close aboard on either side	Pass the buoy well clear on either side	
3	802	B	Which is a weekly publication advising mariners of important matters affecting navigational safety?	Light List	Notice to Mariners	Coast Pilot	Sailing Directions	

3	803	C	Which buoy will NOT display white retroreflective material?	Safe water mark	Isolated danger mark	Preferred channel mark	Daymark of no lateral significance	
3	804	D	A relative bearing is always measured from _____.	true north	magnetic north	the vessel's beam	the vessel's head	
3	805	A	If the right ascension of a body is 9 hours, it also _____.	is 135°	corresponds to an SHA for the body of 45°	means that the GP of the body is in the western hemisphere	All of the above	
3	806	B	Temperature and moisture characteristics are modified in a warm or cold air mass due to _____.	pressure changes in the air mass	movement of the air mass	the heterogeneous nature of the air mass	upper level atmospheric changes	
3	807	C	The approximate mean position of the axis of the Gulf Stream east of Palm Beach, FL, is _____.	35 nautical miles	25 nautical miles	15 nautical miles	5 nautical miles	
3	808	C	On a working copy of a weather map, a stationary front is represented by which color line?	Red	Blue	Alternating red and blue	Purple	
3	809	B	The compass rose on a nautical chart indicates both variation and _____.	deviation	annual rate of variation change	precession	compass error	
3	811	A	Under the IALA-A Buoyage System, a green spar buoy with a triangular topmark would indicate that the buoy _____.	should be left to port when heading out to sea	may be left close aboard on either side	is on the north side of a point of interest	is marking the preferred channel	
3	812	D	You are informed of defects or changes in aids to navigation by _____.	Local Notice to Mariners	Weekly Notice to Mariners	marine broadcasts	All of the above	
3	813	C	At the magnetic equator there is no induced magnetism in the vertical soft iron because _____.	the lines of force cross the equator on a 0°-180° alignment	the quadrantal error is 0°	there is no vertical component of the Earth's magnetic field	the intercardinal headings have less than 1° error	
3	814	A	Steam smoke will occur when _____.	extremely cold air from shore passes over warmer water	warm dry air from shore passes over cooler water	cold ocean water evaporates into warm air	cool rain passes through a warm air mass	
3	815	A	When entering from seaward, a buoy displaying a composite group (2+1) flashing red light indicates _____.	a junction with the preferred channel to the left	a sharp turn in the preferred channel to the right	the starboard side of the secondary channel	a wreck to be left on the vessel's port side	
3	816	B	Cyclones that have warm sectors usually move _____.	westerly	parallel to the isobars in the warm sector	toward the nearest high pressure area	faster than the accompanying cold front	
3	817	D	Which current would you encounter on a direct passage from London, England, to Cape Town, South Africa?	Falkland Current	Brazil Current	Norway Current	Benguela Current	
3	818	D	Ocean swells originating from a typhoon can move ahead of it at speeds near _____.	10 knots	20 knots	30 knots	50 knots	

3	819	A	Which sextant has an index error of 4'20" off the arc?	A	B	C	D	D050NG
3	820	B	A position obtained by crossing lines of position taken at different times and advanced to a common time is a(n) _____.	dead-reckoning position	running fix	estimated position	fix	
3	821	C	In addition to monitoring channel 16, all Corps of Engineer locks may use as working channels _____.	06, 12 and 22A	01A, 05A and 07A	12, 13 and 14	14, 24 and 28	
3	822	C	Charts should be corrected by using information published in the _____.	Light List	American Practical Navigator	Notice to Mariners	Coast Pilot	
3	823	D	The greatest directive force is exerted on the magnetic compass when the _____.	needles are nearly in line with the meridian	vessel is near the magnetic poles	variation is near zero	vessel is near the magnetic equator	
3	824	B	An "atoll cloud" forming over an island due to heating of the land during the daytime would be which type?	Cirrus	Cumulus	Stratus	Nimbus	
3	825	C	While steering a course of 150°T, you wish to observe the Sun for a speed check. What would the azimuth have to be?	000°T	090°T	150°T	240°T	
3	826	A	In the U.S., in which direction do air masses usually move?	Easterly	Southerly	Northerly	Southwesterly	
3	827	C	The Benguela Current flows in a _____.	SW'ly direction along the NW coast of Africa	S'ly direction off the East Coast of Australia	NW'ly direction along the SW coast of Africa	SW'ly direction along the SE coast of Greenland	
3	828	A	The true wind has been determined to be from 210°T, speed 12 knots. You desire the apparent wind to be 30 knots from 10° on the port bow. What course must you steer, and what speed must you make for this to occur?	235°T, 18.6 knots	245°T, 20.0 knots	325°T, 22.4 knots	335°T, 23.6 knots	
3	829	D	You are plotting a running fix in an area where there is a determinable current. How should this current be treated in determining the position?	The drift should be added to the ship's speed.	The set should be applied to the second bearing.	The current should be ignored.	The course and speed made good should be determined and used to advance the LOP.	
3	830	C	The highest frequency of tropical cyclones in the North Atlantic Ocean occurs during _____.	January, February and March	April, May and June	August, September and October	July, November and December	

3	831	A	Under the IALA-A Buoyage system, a buoy marking the starboard side of the channel when approaching from seaward may have a _____.	triangular topmark	red light	can shape	isophase light	
3	832	B	What is the most important source of information to be used in correcting charts and keeping them up to date?	Fleet Guides	Notice to Mariners	Sailing Directions	Pilot Charts	
3	833	D	The magnetic compass magnets are acted on by the horizontal component of the Earth's total magnetic force. This magnetic force is GREATEST at the _____.	north magnetic pole	south magnetic pole	magnetic prime vertical meridian	magnetic equator	
3	834	A	In many areas "atoll" clouds (clouds of vertical development) are produced over small islands. These are the result of _____.	rising air currents produced by the warm islands	warm air from the sea rising over higher land areas	cool land air mixing with warm sea air	descending air over the islands	
3	835	A	When taking stars, those bodies to the east and west will _____.	change altitude rapidly	change altitude slowly	remain in an almost fixed position	appear to be moving in the plane of the horizon	
3	836	D	In North America the majority of the weather systems move from _____.	north to south	south to north	east to west	west to east	
3	837	B	The Brazil Current flows in which general direction?	Northwesterly	Southwesterly	Southeasterly	Northerly	
3	838	D	A navigator fixing a vessel's position by radar _____.	must use information from targets forward of the beam	should never use radar bearings	should only use radar bearings when the range exceeds the distance to the horizon	can use radar information from one object to fix the position	
3	839	A	When using a radar in an unstabilized mode, fixes are determined most easily from _____.	ranges	center bearings	tangent bearings	objects that are close aboard	
3	840	A	Which position includes the effects of wind and current?	Estimated position	Set position	Leeway position	Dead reckoning position	
3	841	B	Under the IALA-A Buoyage system, a buoy marking the port hand of the channel when approaching from seaward may NOT have a _____.	red light	conical shape	group-flashing light	square topmark	
3	842	B	Coast Pilots and navigational charts are kept corrected and up-to-date by using the _____.	pilot charts	Notices to Mariners	Tide Tables	Current Tables	
3	843	B	The line which connects the points of zero magnetic dip is _____.	an agonic line	the magnetic equator	a magnetic meridian	All of the above	

3	844	D	A cloud of marked vertical development (often anvil-shaped) would be classified as _____.	cirrus	cirrocumulus	altocumulus	cumulonimbus	
3	845	B	During one synodic rotation, a body makes one complete turn relative to the _____.	Earth	Sun	stars	vernal equinox	
3	846	C	Weather systems in the middle latitudes generally travel from _____.	east to west	north to south	west to east	None of the above	
3	847	B	On a voyage from Halifax, N.S., to Dakar, West Africa, the Canary Current will _____.	set the vessel to the left	set the vessel to the right	offer resistance in the form of a head current	furnish additional thrust in the form of a fair or following current	
3	848	D	It is unlawful to approach within how many yards of a northern right whale?	200	300	400	500	
3	849	B	The Light List shows that a navigational light has a nominal range of 12 miles and a height above water of 25 feet (7.6 meters). Your height of eye is 30 feet (9.1 meters) and the visibility is 0.5 mile. At what approximate range will you first sight the light?	0.5 mile	1.4 miles	5.2 miles	12.0 miles	
3	850	C	When is the peak of the hurricane season in the western North Pacific?	January through March	April through June	July through October	November through December	
3	851	B	You would expect to find channels marked with the IALA-A Buoyage System in _____.	the Philippines	Australia	Republic of Korea	Chile	
3	852	A	What is published by the U.S. Coast Guard?	Light List	Nautical Charts	Tide Tables	U.S. Coast Pilot	
3	853	A	The standard magnetic compass heading differs from the true heading by _____.	compass error	latitude	variation	deviation	
3	854	A	The appearance of nimbostratus clouds in the immediate vicinity of a ship at sea would be accompanied by which of the following conditions?	Rain and poor visibility	Dropping barometric pressure and backing wind in the Northern Hemisphere	High winds and rising sea	Severe thunderstorms	
3	855	C	Which condition exists at the summer solstice in the Northern Hemisphere?	The north polar regions are in continual darkness.	The Northern Hemisphere is having short days and long nights.	The Southern Hemisphere is having winter.	The Sun shines equally on both hemispheres.	
3	856	B	The flow of air around an anticyclone in the Southern Hemisphere is _____.	clockwise and outward	counterclockwise and outward	clockwise and inward	counterclockwise and inward	
3	857	A	The current that, in many respects, is similar to the Gulf Stream is the _____.	Kuroshio	California Current	Oyashio	Benguela Current	

3	858	A	Your ship is proceeding on course 320°T at a speed of 25 knots. The apparent wind is from 30° off the starboard bow, speed 32 knots. What is the relative direction, true direction and speed of the true wind?	Relative 80°true 040°T, 16.2 knots	Relative 40°true 080°T, 16.4 knots	Relative 80° true 060°T, 15.2 knots	Relative 60°true 040°T, 18.6 knots	
3	859	D	At 1800 ZT on 31 October, your position is LAT 24°50'N, LONG 92°37'W. You are preparing a weather report form, WS Form B-80. How should you encode the first three groups after the call sign if you estimate the wind?	31123, 99929, 70249	31183, 99249, 79237	31243, 99249, 70926	01003, 99248, 70926	D041NG
3	860	A	The Light List shows that a navigational light has a nominal range of 10 miles and a height above water of 38 feet (11.6 meters). Your height of eye is 52 feet (15.8 ,meters) and the visibility is 11.0 miles. At which approximate range will you first sight the light?	10.5 miles	13.9 miles	15.6 miles	18.0 miles	
3	861	C	You would expect to find channels marked with the IALA-A Buoyage System in _____.	Argentina	Japan	India	Canada	
3	862	A	The U.S. Coast Guard publishes _____.	Light Lists	U.S. Coast Pilots	Radio Navigational Aids	All of the above	
3	863	A	The compass heading of a vessel differs from the true heading by _____.	compass error	variation	magnetic dip	deviation	
3	864	A	Uniform, grayish-white cloud sheets that cover large portions of the sky, and are responsible for a large percentage of the precipitation in the temperate latitudes, are called _____.	altostratus	altocumulus	cirrostratus	cirrocumulus	
3	865	A	The radius of a circle of equal altitude of a body is equal to the _____.	coaltitude of the body	altitude of the body	codeclination of the body	polar distance	
3	866	A	Anticyclones are usually characterized by _____.	dry, fair weather	high winds and cloudiness	gustiness and continuous precipitation	overcast skies	
3	867	A	Which ocean current is "warm" based on the latitude in which it originates and on the effect it has on climate?	Kuroshio Current	Benguela Current	Peru Current	California Current	
3	868	B	Your ship received a HYDROLANT advising of a special warning to mariners from the Department of State for ships in the Persian Gulf. You are 400 miles south of, and bound for, the Persian Gulf. What action should you take?	Continue on course as the warning is advisory in nature only.	Send an AMVER report and acknowledge receipt of the warning.	Remain a minimum of 500 miles outside the Persian Gulf and maintain radio silence.	Send a MERWARN message advising your position, course, speed and intentions.	

3	869	A	Tropical storms and hurricanes are most likely to form in the Southern hemisphere during _____.	January through March	April through May	June through August	September through November	
3	870	C	Vessels should maintain a sharp lookout, especially during December through March, when navigating the right whale's only known calving grounds which lie off the coasts of _____.	Nova Scotia	Maine and Massachusetts	Georgia and NE Florida	California and Mexico	
3	871	B	Under the IALA-A Buoyage System, a buoy marking the starboard side of the channel when approaching from seaward must have a(n) _____.	pillar shape	green color	square topmark	even number	
3	872	A	Which agency publishes the Light Lists?	United States Coast Guard	National Ocean Service	Oceanographic Office	Army Corps of Engineers	
3	873	C	Compass error is equal to the _____.	deviation minus variation	variation plus compass course	combined variation and deviation	difference between true and magnetic heading	
3	874	B	Altocumulus clouds are defined as _____.	high clouds	middle clouds	low clouds	vertical development clouds	
3	875	D	Sidereal hour angle is always _____.	measured westward from the hour circle containing the first point of Aries	measured from the point on the celestial sphere occupied by the Sun at the vernal equinox	subtracted from the LHA of the star to obtain the LHA of Aries	All of the above	
3	876	A	A generally circular low pressure area is called a(n) _____.	cyclone	anticyclone	cold front	occluded front	
3	877	D	Cold water flowing southward through the western part of the Bering Strait between Alaska and Siberia is joined by water circulating counterclockwise in the Bering Sea to form the _____.	Alaska Current	Subarctic Current	Kuroshio Current	Oyashio Current	
3	878	C	At 0600 ZT on 31 January, your position is LAT 00°49'S, LONG 84°27'E. You are preparing a weather report form, WS Form B-80. How should you encode the first three groups after the call sign if you estimate the wind?	30243, 90008, 30848	31003, 99049, 38427	31003, 99008, 30844	31063, 99049, 58427	D041NG
3	879	A	You are enroute to assist vessel A. Vessel A is underway at 4.5 knots on course 233°T, and bears 346°T at 68 miles from you. What is the course to steer at 13 knots to intercept vessel A?	327°	323°	318°	314°	

3	880	B	You are taking bearings on two known objects ashore. The BEST fix is obtained when the angle between the lines of position is _____.	60°	90°	45°	30°	
3	881	C	Under the IALA-A Buoyage System, when entering from seaward, a buoy indicating the preferred channel is to starboard may have a _____.	green light	long-flashing light characteristic	square topmark	conical shape	
3	882	B	Some lights used as aids to marine navigation have a red sector to indicate a danger area. The limits of a colored sector of a light are listed in the Light List in which of the following manners?	Geographical positions outlining the area of the sector	True bearings as observed from the ship toward the light	An outline of the area of the sector	True bearings as observed from the light toward the ship	
3	883	C	When changing from a compass course to a true course you should apply _____.	variation	deviation	variation and deviation	a correction for the direction of current set	
3	884	D	Which cloud type is normally associated with thunderstorms?	Cirrus	Stratus	Cumulus	Cumulonimbus	
3	885	C	The daily path of a celestial body that is parallel to the celestial equator is the _____.	altitude circle	vertical circle	diurnal circle	hour circle	
3	886	A	The circulation around a low pressure center in the Northern Hemisphere is _____.	counterclockwise	variable	clockwise	anticyclonic	
3	887	A	Which current would you encounter on a direct passage from southern Africa to Argentina, South America?	South Atlantic	South Equatorial	Agulhas	Guinea	
3	888	A	Recurvature of a hurricane's track usually results in the forward speed _____.	increasing	decreasing	remaining the same	varying during the day	
3	889	B	The Light List shows that a navigational light has a nominal range of 6 miles and a height above water of 18 feet (5.5 meters). Your height of eye is 47 feet (14.3 meters) and the visibility is 1.5 miles. At what approximate range will you first sight the light?	1.5 miles	2.0 miles	6.0 miles	12.7 miles	
3	890	C	If several navigational lights are visible at the same time, each one may be positively identified by checking all of the following EXCEPT what against the Light List?	Rhythm	Period	Intensity	Color	
3	891	D	Under the IALA-A Buoyage System, a buoy indicating the preferred channel is to port would have _____.	an even number	an odd number	a pillar shape	horizontal bands	
3	892	A	When a buoy is in position only during a certain period of the year, where may the dates when the buoy is in position be found?	Light List	Notice to Mariners	On the chart	Coast Pilot	

3	893	B	One point of a compass is equal to how many degrees?	7.5	11.25	17.5	22.5	
3	894	A	On a clear, warm day, you notice the approach of a tall cumulus cloud. The cloud top has hard well defined edges and rain is falling from the dark lower edge. Should this cloud pass directly overhead _____.	it will be preceded by a sudden increase in wind speed	it will be preceded by a sudden decrease in wind speed	the wind speed will not change as it passes	the wind will back rapidly to left in a counterclockwise direction as it passes	
3	895	A	The ecliptic is _____.	the path the Sun appears to take among the stars	the path the Earth appears to take among the stars	a diagram of the zodiac	a great circle on a gnomonic chart	
3	896	C	The wind direction around a low pressure area in the Northern Hemisphere is _____.	clockwise and inward	clockwise and outward	counterclockwise and inward	counterclockwise and outward	
3	897	D	What current flows southward along the west coast of the United States and causes extensive fog in that area?	Davidson Current	North Pacific Current	Alaska Current	California Current	
3	898	A	At 1200 ZT, on 31 July, your position is LAT 24°33'N, LONG 173°05'W. You are preparing a weather report form, WS Form, B-80. How should you encode the first three groups after the call sign if you estimate the wind?	01003, 99245, 71731	01243, 92433, 71731	31243, 99245, 71731	31003, 92433, 71730	D041NG
3	899	C	A latitude line will be obtained by observing a body _____.	on the prime vertical	on the celestial horizon	at lower transit	on the Greenwich meridian	
3	900	A	An orange and white buoy with a rectangle on it is a(n) _____.	informational buoy	junction buoy	safe water buoy	All of the above	
3	901	D	Under the IALA-A Buoyage System, a buoy indicating that the preferred channel is to port when entering from seaward, can have a _____.	can shape	group-flashing (2) light	red-and-green vertical stripes	green light	
3	903	B	Eight points of a compass are equal to how many degrees?	45	90	180	360	
3	904	A	All of the following are associated with cumulonimbus clouds EXCEPT _____.	steady rainfall	hail storms	thunderstorms	tornadoes or waterspouts	
3	905	A	The Sun's center is coincident with the principal vertical circle when _____.	in lower transit	the hour circle and prime vertical are coincident	the declination is zero degrees and the azimuth is exactly N 135°E	the declination is zero degrees and the azimuth is exactly N 135°W	
3	906	A	In the Northern Hemisphere, an area of counterclockwise wind circulation surrounded by higher pressure is a _____.	low	high	warm front	cold front	

3	907	C	In which month will the equatorial counter current be strongest?	January	April	August	October	
3	908	C	From LAT 07°12'N, LONG 80°00'W, to LAT 47°12'S, LONG 169°18'E, the initial great circle course angle is 137.25°. How would you name this course?	N 137.25°E	S 137.25°E	N 137.25°W	S 137.25°W	
3	909	C	What is the average speed of movement of a hurricane prior to recurvature?	4 to 6 knots	6 to 8 knots	10 to 12 knots	15 to 20 knots	
3	910	C	The Light List shows that a navigational light has a nominal range of 12 miles and a height above water of 25 feet (7.6 meters). Your height of eye is 38 feet (11.6 meters) and the visibility is 5.5 miles. At what approximate range will you FIRST sight the light?	5.5 miles	6.3 miles	8.0 miles	12.0 miles	
3	911	A	Under the IALA-B Buoyage System, a buoy displaying a red light will _____.	be left to starboard when entering from seaward	show a light characteristic of Morse Code "A"	be lettered	have a radar reflector	
3	912	B	The Light List Does NOT contain information on _____.	the Global Positioning System (GPS)	aeronautical lights useful for marine navigation	radio beacon systems	radio direction finder calibration stations	
3	913	D	How many points are there in a compass card?	4	8	24	32	
3	914	C	If the sky was clear, with the exception of a few cumulus clouds, it would indicate _____.	rain	hurricane weather	fair weather	fog setting in	
3	915	D	The Sun's center may be coincident with both the celestial equator and the observer's prime vertical circle when _____.	it crosses the December solstitial point	it crosses the June solstitial point	it is in upper transit	its declination is zero	
3	916	A	Stormy weather is usually associated with regions of _____.	low barometric pressure	high barometric pressure	steady barometric pressure	changing barometric pressure	
3	917	A	As the South Equatorial Current approaches the east coast of Africa, it divides with the main part flowing south to form the warm _____.	Agulhas Current	Canary Current	Benguela Current	Madagascar Current	
3	918	B	At 1200 ZT, on 31 August, your position is LAT 43°14'S, LONG 175°44'E. You are preparing a weather report form, WS Form B-80. How should you encode the first three groups after the call sign if you estimate the wind?	01003, 94314, 51757	31003, 99432, 31757	31123, 99432, 31754	31243, 94314, 31757	DO41NG

3	919	B	You are plotting a running fix in an area where there is a determinable current. How should this current be treated in determining the position?	The drift should be added to the ship's speed.	The course and speed made good should be determined and used to advance the LOP.	The current should be ignored.	The set should be applied to the second bearing.	
3	920	B	What is the average speed of the movement of a hurricane following the recurvature of its track?	5 to 10 knots	20 to 30 knots	40 to 50 knots	Over 60 knots	
3	921	A	Under the IALA-B Buoyage System, a conical buoy will be _____.	red in color	numbered with an odd number	left to port when entering from seaward	All of the above	
3	922	C	How is the intensity of a light expressed in the Light Lists?	Luminous range	Geographic range	Nominal range	Meteorological range	
3	923	C	A magnetic compass card is marked in how many degrees?	90	180	360	400	
3	924	C	The form of cloud often known as "mackerel sky" which is generally associated with fair weather is _____.	nimbostratus	stratus	cirrocumulus	cumulonimbus	
3	925	C	Your vessel is at the equator at midnight on 1 January, and a star is observed rising. At what time will this same star rise on 1 February, assuming your vessel's location is still at the equator?	2208	2110	2158	2317	
3	926	B	When a low pressure area is approaching, the weather generally _____.	improves	worsens	remains the same	is unpredictable	
3	927	B	The set of the equatorial countercurrent is generally to the _____.	north	east	southwest	northwest	
3	928	A	The position labeled "D" was plotted because _____.	a dead reckoning position is plotted for each course change	a dead reckoning position is plotted within 30 minutes of a running fix	the vessel's speed changed at 1125	All of the above	D051NG
3	929	C	Which error is NOT included in the term "current" when used in relation to a fix?	Poor steering	Leeway	Known compass error	Ocean currents	
3	930	A	Which statement about radio navigational warnings is TRUE?	The topics for warnings included in HYDROLANTS, HYDROPACS, and NAVAREA warnings are the same.	NAVAREA warnings concern only coastal navigation and inland navigation in large bays or sounds such as Puget Sound.	The United States is responsible for NAVAREA warnings in the North Atlantic north of 7°N, and west of 15°W.	Long range radio navigational warnings are usually broadcast by radiotelephone, radiotelegraph, and radio-teletypewriter.	

3	931	C	Under the IALA-B Buoyage System, when entering from seaward, a buoy that should be left to port will be _____.	black	red	green	yellow	
3	932	B	To find the specific phase characteristic of a lighthouse on a sound of the United States you would use the _____.	American Practical Navigator	Light List	Nautical Chart Catalog	U.S. Coast Pilot	
3	933	A	How many degrees are there on a compass card?	360°	380°	390°	420°	
3	934	D	Clouds that form as small white flakes or scaly globular masses covering either small or large portions of the sky are _____.	cirrus	cirrostratus	altostratus	cirrocumulus	
3	935	B	The Light List shows that a navigational light has a nominal range of 5 miles and a height above water of 21 feet (6.4 meters). Your height of eye is 32 feet (9.8 meters) and the visibility is 1.0 mile. At what approximate range will you first sight the light?	1.0 mile	1.5 miles	5.0 miles	11.7 miles	
3	936	C	A cyclone in its final stage of development is called a(n) _____.	tornado	anticyclone	occluded cyclone or occluded front	polar cyclone	
3	937	D	The north equatorial current flows to the _____.	east	northeast	southwest	west	
3	938	B	If within 500 yards (460m) of a Northern Right Whale you are lawfully obligated to _____.	turn away from the whale and leave at full speed	turn away from the whale and leave at slow speed	slow to bare steerageway until the whale swims away	stop the vessel and sound repeated blasts on the ship's whistle to scare the whale away	
3	939	D	That half of the hurricane to the right hand side of its track (as you face the same direction that the storm is moving) in the Northern Hemisphere is called the _____.	windward side	leeward side	safe semicircle	dangerous semicircle	
3	940	A	What is the length of a nautical mile?	6,076 feet	5,280 feet	2,000 yards	1,850 meters	
3	941	B	While preparing to enter a Brazilian port, you see ahead a red and green horizontally-striped buoy. The upper band is red. What action should you take?	Alter course to leave the buoy to port.	Alter course to leave the buoy to starboard.	Pass the buoy close aboard on either side.	Pass the buoy well clear on either side.	
3	942	D	Light Lists for coastal waters are _____.	published every year and require no corrections	published every second year and must be corrected	published every five years and require no correction	accurate thru NM number on title page and must be corrected	

3	943	C	You should plot your dead reckoning position _____.	when you obtain an estimated position	ONLY in piloting waters	at every speed change	All of the above are correct.	
3	944	B	High clouds, composed of small white flakes or scaly globular masses, and often banded together to form a "mackerel sky", would be classified as _____.	cirrus	cirrocumulus	altostratus	cumulonimbus	
3	945	A	What is NOT a side of the navigational triangle used in sight reduction?	Altitude	Zenith distance	Colatitude	Polar distance	
3	946	D	The wind circulation around a high pressure center in the Northern Hemisphere is _____.	counterclockwise and moving towards the high	counterclockwise and moving outward from the high	clockwise and moving towards the high	clockwise and moving outward from the high	
3	947	B	The cold ocean current which meets the warm Gulf Stream between latitudes 40° and 43°N to form the "cold wall" is called the _____.	North Cape Current	Labrador Current	Greenland Current	North Atlantic Current	
3	949	B	In Region A of the IALA Buoyage System, when entering from seaward, the port side of a channel would be marked by a _____.	black can buoy	red can buoy	black conical buoy	red conical buoy	
3	950	A	Where is the dangerous semicircle located on a hurricane in the Southern Hemisphere?	To the left of the storm's track	To the right of the storm's track	In the high pressure area	On the south side	
3	951	C	In which country would you expect the channels to be marked with the IALA-B Buoyage System?	Poland	Morocco	Peru	Saudi Arabia	
3	952	C	What is TRUE concerning new editions of Light Lists?	Supplements to new editions are issued monthly by the U.S. Coast Guard.	New editions are published by the National Ocean Service.	New editions are corrected through the date shown on the title page.	None of the above	
3	953	C	The magnetic compass operates on the principle that _____.	like magnetic poles attract	unlike magnetic poles repel	unlike poles attract	the poles of the compass line up with the geographic poles of the earth	
3	954	D	A thin, whitish, high cloud popularly known as "mares' tails" is _____.	altostratus	stratus	cumulus	cirrus	
3	955	D	The line of position determined from a sight with an observed altitude (Ho) of 88°45.0' should be _____.	reduced to the meridian and plotted as a latitude line	calculated as a longitude line	plotted by using an intercept from an assumed position	plotted as an arc around the GP of the body	
3	956	B	Good weather is usually associated with a region of _____.	low barometric pressure	high barometric pressure	falling barometric pressure	pumping barometric pressure	
3	957	A	The Humboldt Current flows in which direction?	North	South	East	West	

3	958	A	You are preparing a weather report form. Twenty-five percent of the sky is covered with clouds, and the anemometer indicates that the apparent wind is from 062° relative at 13 knots. You are on course 238°T at 22 knots. How should you encode group Nddff?	20220	20613	30219	32413	D041NG
3	959	C	What is the index error of sextant B in illustration D050NG?	0'30" off the arc	1'00" off the arc	3'30" off the arc	1'30" on the arc	D050NG
3	960	B	The Light List shows that a navigational light has a nominal range of 15 miles and a height above water of 29 feet (8.8 meters). Your height of eye is 52 feet (15.8 meters) and visibility is 6.0 miles. At which approximate range will you first sight the light?	8.0 miles	11.0 miles	14.5 miles	16.0 miles	
3	961	A	In which country would you expect the channels to be marked with the IALA-B Buoyage System?	Brazil	Tanzania	New Zealand	Norway	
3	962	D	Chart legends which indicate a conspicuous landmark are printed in _____.	underlined letters	boldfaced print	italics	capital letters	
3	963	C	To center a compass bowl in its binnacle, you should have the ship on an even keel, heading north or south, and adjust the screws until _____.	the compass heading is in line with the lubber's line	there is no lost motion in the gimbal rings	no change of heading by compass is observed if you raise and lower the heeling magnet	the gimbal rings do not strike the compass frame when they are tilted	
3	964	A	The thin, whitish, high clouds composed of ice crystals, popularly known as "mares' tails" are _____.	cirrus	cirrocumulus	altostratus	nimbostratus	
3	965	A	In order for a star to be used for a sight at lower transit, the star must _____.	be circumpolar	have a declination equal to or greater than your latitude	have a GHA of 180°	have the SHA equal to or less than the LHA	
3	966	B	Most high pressure areas in the United States are accompanied by _____.	precipitation	clear, cool weather	humid, sticky weather	cool fogs	
3	967	C	On an Atlantic Ocean voyage from New York to Durban, South Africa, you should expect the Agulhas Current to present a strong _____.	offshore set	onshore set	head current	fair or following current	
3	968	B	The world is divided into NAVAREAS for the dissemination of important marine information. Which NAVAREAS include the U.S. coasts?	I and II	IV and XII	V and X	VI and VII	
3	969	A	The population of northern right whales, an endangered species, numbers approximately _____.	300	5000	100,000	1,000,000	

3	970	B	You are preparing a weather report form, WS Form B-80. The sky is overcast, and the anemometer indicates that the apparent wind is from 144° relative at 8 knots. You are on course 162°T at 15 knots. How should you encode group Nddff?	91521	83322	81408	01615	D041NG
3	971	C	You are in British waters on course 090°T when you sight a flashing white light with a characteristic of VQ(9)10s. You immediately change course to 030°T. After one hour, you sight another flashing white light with the characteristic of VQ. You must pass well _____.	south of this buoy	west of this buoy	north of this buoy	east of this buoy	
3	972	B	In which source could you find the number of a chart for a certain geographic area?	Chart No. 1	Catalog of Charts	American Practical Navigator	U.S. Coast Guard Light List	
3	973	C	The heading of a vessel is indicated by what part of the compass?	Card	Needle	Lubber's line	Gimbals	
3	974	A	Which cloud commonly produces a halo about the Sun or Moon?	Cirrostratus	Cirrocumulus	Altostratus	Altocumulus	
3	975	D	The change in the length of the day becomes greater as latitude increases because of the _____.	path of the ecliptic relative to the equator	decreasing distance between meridians	changing distance between the Earth and the Sun	increased obliquity of the Sun's diurnal circle	
3	976	A	The atmosphere in the vicinity of a high pressure area is called a(n) _____.	anticyclone	cold front	occluded front	cyclone	
3	977	A	In the Sargasso Sea there are large quantities of seaweed and no well defined currents. This area is located in the _____.	Central North Atlantic Ocean	Caribbean Sea	Western North Pacific Ocean	area off the west coast of South America	
3	978	C	The wind velocity is higher in the dangerous semicircle of a tropical cyclone because of the _____.	recurvature effect	extension of the low pressure ridge	wind circulation and forward motion of the storm	direction of circulation and pressure gradient	
3	979	A	Which kind of conditions would you observe as the eye of a storm passes over your vessel's position?	Huge waves approaching from all directions, clearing skies, light winds, and an extremely low barometer	Flat calm seas, heavy rain, light winds, and an extremely low barometer	Flat calm seas, heavy rain, light winds, and high pressure	Huge waves approaching from all directions, clearing skies, light winds, and high pressure	
3	980	B	When the declination of the Moon is 0°12.5'S, you can expect some tidal currents in Gulf Coast ports to _____.	have either a double ebb or a double flood	become weak and variable	become reversing currents	exceed the predicted velocities	
3	981	A	The characteristic of a lighted cardinal mark may be _____.	very quick flashing	flashing	fixed	occulting	

3	983	D	Error may be introduced into a magnetic compass by _____.	making a structural change to the vessel	a short circuit near the compass	belt buckles	All of the above	
3	984	B	The bases of middle clouds are located at altitudes of between _____.	3,000 to 6,500 feet (914 to 1981 meters)	6,500 to 20,000 feet (1981 to 6096 meters)	10,000 to 35,000 feet (3048 to 10,668 meters)	20,000 to 60,000 feet (6096 to 18,288 meters)	
3	985	B	A time diagram is a diagram on the plane of the _____.	celestial meridian	celestial equator	celestial horizon	principal vertical circle	
3	986	A	A warm air mass is characterized by _____.	stability	instability	gusty winds	good visibility	
3	987	C	Which current is responsible for the movement of icebergs into the North Atlantic shipping lanes?	Iceland Current	Baltic Current	Labrador Current	Baffin Current	
3	988	C	You are preparing a weather report form, WS Form B-80. One-half of the sky is covered with clouds, and the anemometer indicates that the apparent wind is from 340° relative at 14 knots. You are on course 307°T at 12.6 knots. How should you encode group Nddff?	53414	54013	42205	43013	D041NG
3	989	D	The Light List shows that a navigational light has a nominal range of 18 miles and a height above water of 22 feet (6.7 meters). Your height of eye is 16 feet (4.9 meters) and the visibility is 2.0 miles. At which approximate range will you first sight the light?	2.0 miles	2.7 miles	4.2 miles	5.8 miles	
3	990	D	You plot a fix using three lines of position and find they intersect in a triangle. You should plot the position of the vessel _____.	outside of the triangle	anywhere in the triangle	on the line of position from the nearest object, between the other two lines of position	in the geometric center of the triangle	
3	991	D	You are underway in the North Sea on course 328°T when you sight a buoy broad on your port bow. You are in the best navigable water if the buoy _____.	has a topmark of two cones with points down	is a western quadrant buoy	is painted yellow on the top half and black on the bottom	exhibits a light with the characteristic of VQ(3)5s	
3	992	A	Which publication contains information on Naval Control of Shipping (NCS) in time of emergency or war?	Pub. 117, Radio Navigational Aids	Appropriate volume of the Sailing Directions	Pub. 102, International Code of Signals	Light List	
3	993	B	When crossing the magnetic equator the _____.	Flinders bar should be inverted	heeling magnet should be inverted	the quadrantal spheres should be rotated 180°	Flinders bar should be moved to the opposite side of the binnacle	

3	994	B	Which list of clouds is in sequence, from highest to lowest in the sky?	Altostratus, cirrostratus, stratus	Cirrostratus, altostratus, stratus	Stratus, cirrostratus, altostratus	Altostratus, stratus, cirrostratus	
3	995	D	What is the equivalent of 83°29.6' in time units?	5h 47m 34.8s	5h 18m 22.7s	5h 01m 42.3s	5h 33m 58.4s	
3	996	B	Warm air masses will generally have _____.	turbulence within the mass	stratiform clouds	heavy precipitation	good visibility	
3	997	B	A coastal current _____.	is generated by waves striking the beach	flows outside the surf zone	flows in a circular pattern	is also known as a longshore current	
3	998	D	The navigable semicircle of a tropical storm in the South Indian Ocean is located on which side of the storm's track?	Rear	Front	Left	Right	
3	999	D	You are preparing a weather report form, WS Form B-80. Three-quarters of the sky is covered with clouds, and the anemometer indicates that the apparent wind is from 226° relative at 17.7 knots. You are on course 020°T at 8 knots. How should you encode group Nddff?	80208	72218	72318	62324	D041NG
3	1000	A	You are inbound in a channel marked by a range. The range line is 309°T. You are steering 306°T. The range appears as shown and is closing. Which action should you take?	Continue on course until the range is closed, then alter course to the right.	Continue on the present heading until the range is in line, then alter course to the left.	Immediately alter course to the right to bring the range in line.	Immediately alter course to 309°T to bring the range in line.	D047NG
3	1001	A	While steaming in English waters on course 280°T, you sight a buoy showing a very quick-flashing (VQ) white light well to port. Maintaining course, you sight another buoy showing a quick-flashing (Q) white light. You should pass _____.	north of the buoy	west of the buoy	east of the buoy	south of the buoy	
3	1002	A	What publication contains information about the port facilities in Cadiz, Spain?	World Port Index	United States Coast Pilot	Nautical Index	Sailing Directions	
3	1003	A	The quadrantal spheres are used to _____.	remove deviation on the intercardinal headings	remove deviation on the cardinal compass headings	remove heeling error	compensate for induced magnetism in vertical soft iron	
3	1004	C	A low, uniform layer of cloud resembling fog, but not resting on the ground, is called _____.	cumulus	nimbus	stratus	cirrus	
3	1005	B	The refraction correction table given in the Nautical Almanac is based on a standard or average atmospheric density with a temperature of 50°F (10°C) and atmospheric pressure of _____.	29.72 inches (1006 millibars)	29.83 inches (1010 millibars)	29.89 inches (1012 millibars)	29.93 inches (1014 millibars)	

3	1006	B	An air mass is termed "warm" if _____.	it is above 70°F	the ground over which it moves is cooler than the air	it originated in a high pressure area	it originated in a low pressure area	
3	1007	B	When a current flows in the opposite direction to the waves, the wave _____.	length is increased	height is increased	velocity increases	length is unchanged	
3	1008	C	The Light List indicates that a light has a nominal range of 18 miles and is 38 feet high. If the visibility is 6 miles and your height of eye is 15 feet, at which distance will you sight the light?	18.0 nm	14.8 nm	11.7 nm	6.0 nm	
3	1009	C	You are preparing a weather report form, WS Form B-80. The dry bulb thermometer reads 34°F, and the wet bulb thermometer reads 31°F. Using the ships code card, how would you encode the air temperature groups in the report?	10340, 2127/	10111, 2104/	10011, 2104/	10340, 2031/	D041NG
3	1010	C	What is a characteristic of a rhumb line?	It is the shortest distance between two points on the Earth.	It plots as a straight line on a Lambert conformal chart.	It cuts each meridian at the same angle.	The course angle constantly changes to form the loxodromic curve.	
3	1011	D	You are underway in the North Sea on course 127°T. You sight a buoy with the topmarks shown bearing two points on the starboard bow. Which action must be taken?	Alter course to starboard until the buoy is at least two points on the port bow, then hold course.	Alter course to port until the buoy is broad on the starboard quarter, then hold course.	Change course to have the buoy close aboard either side.	Ensure the bearings change to the right.	D025NG
3	1012	A	General information about the location, characteristics, facilities, and services for U.S. and foreign ports may be obtained from which publication?	World Port Index	Sailing Directions	Distances Between Ports	Coast Pilot	
3	1013	D	The purpose of the soft iron spheres mounted on arms on the binnacle is to compensate for _____.	the vertical component of the permanent magnetism of the vessel	the residual deviation	magnetic fields caused by electrical currents in the vicinity	induced magnetism in the horizontal soft iron	
3	1014	B	Relative humidity is the percentage of water vapor that is in the air as compared to the maximum amount it can hold at _____.	a specific barometric pressure	a specific temperature	a specific wind speed	any time	
3	1015	D	Which statement about the time diagram shown is correct?	The Greenwich hour angle of the Sun is greater than 180°.	The meridian angle of the Sun is labeled west.	The date of Greenwich is the day after the date for observer at M.	The Sun has already passed the lower branch of the observer's meridian.	D005NG

3	1016	B	A source of an air mass labeled mTw is _____.	the equator	the Gulf of Mexico	Alaska	Canada	
3	1017	C	Which statement(s) concerning the effect of Coriolis force on ocean currents is(are) correct?	The deflection of the current is to the left in the Northern Hemisphere.	The Coriolis force is greater in the lower latitudes.	The Coriolis force is more effective in deep water.	All of the above	
3	1018	A	An aneroid barometer reading should be corrected for differences in _____.	elevation	temperature	wind speed	latitude	
3	1019	D	You are preparing a weather report form, WS Form B-80. The dry bulb thermometer reads 30°F (-1°), and the wet bulb thermometer reads 28°F (-2°C). Using the Ships Code Card, how would you encode the air temperature groups in the report?	10011, 2003/	11300, 2124/	11011, 2124/	11011, 2104/	D041NG
3	1020	C	The Light List shows that a navigational light has a nominal range of 6 miles and a height above water of 18 feet (5.5 meters). Your height of eye is 40 feet (12.2 meters) and the visibility is 27.0 miles. At which approximate range will you first sight the light?	5.6 miles	6.4 miles	9.8 miles	12.1 miles	
3	1021	D	You are underway in the North Sea on course 142°T when you sight a buoy bearing 105°T. The buoy's white light has a characteristic of continuous very-quick flashing. To ensure that your vessel remains in the best navigable water you would _____.	continue on course and ensure that the bearings change to the left	pass between the buoy and another buoy showing a fixed white light	alter course to port and pass the buoy close aboard to either side	alter course to port and pass north of the buoy	
3	1022	B	What is the approximate geographic range of Fenwick Island Light, Delaware, if your height of eye is 37 feet (11.6 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	24.8 nm	17.8 nm	15.9 nm	10.3 nm	
3	1023	A	Which compensates for induced magnetism in the horizontal soft iron of a vessel?	Iron spheres mounted on the binnacle	A single vertical magnet under the compass	The Flinders bar	Magnets in trays inside the binnacle	
3	1024	D	The dew point is reached when the _____.	temperature of the air equals the temperature of the seawater	atmospheric pressure is 14.7 lbs. per square inch	relative humidity reaches 50%	air becomes saturated with water vapor	
3	1025	A	A first magnitude star is _____.	2.5 times as bright as a second magnitude star	3 times as bright as a second magnitude star	5 times as bright as a second magnitude star	10 times as bright as a second magnitude star	

3	1026	B	An air mass that has moved down from Canada would most likely have the symbols _____.	mPk	cPk	cTk	cTw	
3	1027	A	In the Northern Hemisphere the major ocean currents tend to flow _____.	clockwise around the North Atlantic and North Pacific Oceans	clockwise or counterclockwise depending on whether it is warm or cold current	counterclockwise except in the Gulf Stream	counterclockwise around the North Atlantic and North Pacific Oceans	
3	1028	D	At what angle to the isobars do surface winds blow over the open sea?	About 90°	About 50°	About 25°	About 15°	
3	1029	D	Which would be the subject of a NAVAREA warning?	A drifting buoy sighted in mid-ocean	Extinguishment of Wolf Trap Light located inside Chesapeake Bay	All military exercises on the high seas involving four or more vessels	Off-air times of radio beacons when scheduled for routine maintenance	
3	1030	A	You are preparing a weather report form, WS Form B-80. The dry bulb thermometer reads 78°F, and the wet bulb thermometer reads 75°F. How would you encode the air temperature groups in the report?	10256, 2023/	10780, 2074/	00256, 0023/	10256, 2074/	D041NG
3	1031	B	While steaming north of the Irish coast, you sight a buoy which shows the light rhythm shown in illustration D028NG. How would you pass this buoy?	North of the buoy	East of the buoy	South of the buoy	West of the buoy	D028NG
3	1032	C	What is the approximate geographic range of Point Judith Light, Rhode Island, if your height of eye is 62 feet (18.9 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	9.6 nm	16.5 nm	18.6 nm	20.7 nm	
3	1033	D	Deviation which is maximum on intercardinal compass headings may be removed by the _____.	Flinders bar	transverse magnets	fore-and-aft magnets	soft iron spheres on the sides of the compass	
3	1034	A	The expression "the air is saturated" means _____.	the relative humidity is 100%	the vapor pressure is at its minimum for the prevailing temperature	precipitation has commenced	cloud cover is 100%	
3	1035	D	The approximate positions of the stars are based on sidereal time, which is based upon rotation of the Earth relative to _____.	winter solstice	autumnal equinox	summer solstice	vernal equinox	
3	1036	C	A frontal thunderstorm is caused by _____.	pronounced local heating	wind being pushed up a mountain	a warm air mass rising over a cold air mass	an increased lapse rate caused by advection of warm surface air	

3	1037	B	Generally speaking, a ship steaming across the North Pacific from Japan to Seattle is likely to experience _____.	adverse currents for practically the entire crossing	favorable currents for practically the entire crossing	favorable currents in the summer months and adverse currents in the winter months	variable currents having no significant effect on the total steaming time	
3	1038	B	You are preparing a weather report form, WS Form B-80. The dry bulb thermometer reads 54°F, and the wet bulb thermometer reads 50°F. How would you encode the air temperature groups in the report?	1054/, 2050/	10122, 2008/	1054/, 2047/	054//, 047//	D041NG
3	1039	D	While taking weather observations, you determine that the wind is coming from the west. In the weather log, you would record the wind direction as _____.	000°	090°	180°	270°	
3	1040	C	An occluded front is usually caused by a _____.	cold front becoming stationary	warm front becoming stationary	cold front overtaking a warm front	warm front dissipating	
3	1041	C	You are steaming along the coast of Ireland in the Irish Sea. You sight a lighted buoy with a white flashing light showing a group of two flashes. The buoy indicates you _____.	must pass south of the buoy	must pass north of the buoy	should pass well clear on either side of the buoy	must pass the buoy close to starboard	
3	1042	D	What is the approximate geographic range of Shinnecock Light, NY, if your height of eye is 24 feet (7.3 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	8.7 nm	9.9 nm	14.4 nm	15.9 nm	
3	1043	C	You are about to go to sea and adjust the magnetic compass. To expedite the adjustment at sea, in what order should the following dockside adjustments be made?	Flinders bar first, then the heeling magnet and spheres	Heeling magnet first, then the Flinders bar and spheres	Flinders bar first, then the spheres and heeling magnet	Spheres first, then the Flinders bar and heeling magnet	
3	1044	C	The dry-bulb temperature is 78°F and the wet-bulb temperature is 62°F. What is the relative humidity?	16%	24%	39%	79%	
3	1045	B	The Light List shows that a navigational light has a nominal range of 15 miles and a height above water of 40 feet (12.2 meters). Your height of eye is 25 feet (7.6 meters) and the visibility is 5 miles. At about what range will you FIRST sight the light?	6.2 miles	9.5 miles	12.9 miles	14.2 miles	
3	1046	C	The probability of a sudden wind may be foretold by _____.	a partly cloudy sky	an overcast sky	a fast approaching line of dark clouds	the formation of cumulus clouds in the sky	

3	1048	C	The velocity of the current in large coastal harbors is _____.	unpredictable	generally too weak to be of concern	predicted in Tidal Current Tables	generally constant	
3	1049	B	At 0000 you fix your position and change course to 270°T. At 0030 you again fix your position, and it is 0.5 mile east of your DR. Which statement is TRUE?	The set is 090°, drift 0.5 knot.	The set is 090°, drift 1.0 knot.	The set is 270°, drift 0.5 knot.	The set is 270°, drift 1.0 knot.	
3	1050	C	The passing of a low pressure system can be determined by periodically checking the _____.	thermometer	hygrometer	barometer	anemometer	
3	1051	D	Under the IALA Buoyage Systems, a cardinal mark may NOT be used to _____.	indicate that the deepest water in an area is on the named side of the mark	indicate the safe side on which to pass a danger	draw attention to a feature in the channel such as a bend, junction, bifurcation, or end of a shoal	indicate the port and starboard sides of well-defined channels	
3	1052	A	What is the approximate geographic range of Southwest Ledge Light, Connecticut, if your height of eye is 32 feet (9.8 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	15.5 nm	13.4 nm	8.7 nm	6.9 nm	
3	1053	D	Before a magnetic compass is adjusted certain correctors must be checked to ensure that they are free of permanent magnetism. These correctors are the _____.	fore-and-aft and athwartships magnets	dip needle and heeling magnet	heeling magnet and Flinders bar	Flinders bar and quadrantal spheres	
3	1054	D	The dry-bulb temperature is 78°F (26°C) and the wet-bulb temperature is 68°F (20°C). What is the relative humidity?	10%	24%	56%	60%	
3	1055	D	The radius of a circle of equal altitude for a body equals the body's _____.	declination	polar distance	altitude	zenith distance	
3	1056	B	The steepness of a cold front depends on _____.	the direction of wind around the front	its velocity	the temperature of the air behind the front	the precipitation generated by the front	
3	1058	C	You are preparing a weather report form, WS Form B-80. Your position is LAT 64°42'N, LONG 02°28'W. How would this be encoded?	90647, 90024	0647N, 00025	99647, 70025	9064N, 9025W	D041NG

3	1059	B	The Light List shows that a navigational light has a nominal range of 17 miles and a height above water of 28 feet (8.5 meters). Your height of eye is 32 feet (9.8 meters) and the visibility is 11.0 miles. At what approximate range will you first sight the light?	11.0 miles	12.6 miles	15.7 miles	18.0 miles	
3	1060	C	Isobars on a weather map are useful in predicting _____.	temperature	dew point	wind velocity	relative humidity	
3	1061	B	In waters where the cardinal system is used you would expect to find danger _____.	lying to the south of an eastern quadrant buoy	lying to the south of a northern quadrant buoy	lying to the east of an eastern quadrant buoy	beneath or directly adjacent to the buoy	
3	1062	B	What is the approximate geographic range of Horton Point Light, NY, if your height of eye is 40 feet (12.2 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	18.8 nm	19.3 nm	20.3 nm	24.8 nm	
3	1063	C	When adjusting a magnetic compass using the fore-and-aft permanent magnets, you should _____.	use the magnets one at a time, putting one in one side and then one on the opposite side, one step higher.	use the magnets in pairs, starting at the top, with trays at the highest point of travel	use the magnets in pairs, from the bottom up, with the trays at the lowest point of travel	fill all the trays with magnets, then remove them one-by-one until the deviation is removed	
3	1064	D	The dew point temperature is _____.	always higher than the air temperature	always lower than the air temperature	equal to the difference between the wet and dry bulb temperatures	the temperature at which the air is saturated with water vapor	
3	1065	C	You are in the Northern Hemisphere and a tropical wave is located 200 miles due east of your position. Where will the wave be located 12 hours later?	Farther away to the east	In the same position	Nearby to the east	Farther away to the west	
3	1066	C	The slope of a warm front is about _____.	1 mile vertically to 10 miles horizontally	1 mile vertically to 50 miles horizontally	1 mile vertically to 150 miles horizontally	1 mile vertically to 500 miles horizontally	
3	1067	B	The two most effective generating forces of surface ocean currents are _____.	temperature and salinity differences in the water	wind and density differences in the water	water depth and underwater topography	rotation of the Earth and continental interference	
3	1068	B	A vessel sighting a northern right whale dead ahead should _____.	maintain course and speed	alter course to give a wide clearance	report the whale's position to the Canadian Coast Guard	All of the above	
3	1069	A	What do the numbers on isobars indicate?	barometric pressure	temperature	rain in inches	wind speed	

3	1070	B	Chart legends which indicate a conspicuous landmark are printed in _____.	underlined letters	capital letters	italics	boldface print	
3	1071	A	A cardinal mark showing an uninterrupted quick-flashing white light indicates the deepest water in the area is on the _____.	north side of the mark	west side of the mark	east side of the mark	south side of the mark	
3	1072	C	What is the approximate geographic range of Assateague Light, VA, if your height of eye is 52 feet (15.8 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	14.1 nm	21.8 nm	23.0 nm	50.2 nm	
3	1073	C	Chart legends printed in capital letters show that the associated landmark is _____.	inconspicuous	a radio transmitter	conspicuous	a government facility or station	
3	1074	D	As the temperature for a given mass of air increases, the _____.	dew point increases	dew point decreases	relative humidity increases	relative humidity decreases	
3	1075	A	The expression "first magnitude" is usually used to refer only to bodies of magnitude _____.	1.5 and greater	1.25 and greater	1.0 and greater	0.5 and greater	
3	1076	A	Which is TRUE concerning the speed of fronts?	Cold fronts move faster than warm fronts.	Cold fronts move slower than warm fronts.	Cold fronts and warm fronts move with equal speed.	Cold fronts move slower at the northern end and faster at the southern end.	
3	1078	B	The description "Racon" beside an illustration on a chart would mean a _____.	radar conspicuous beacon	radar transponder beacon	radar calibration beacon	circular radio beacon	
3	1080	A	Information on northern right whales can be found in _____.	the Coast Pilot	HO 229	the Nautical Almanac	Ship's Medicine Chest and Medical Aid at Sea	
3	1081	C	On a voyage along the coast of France, you sight a buoy with the top marks as shown. You are required to steer _____.	west of the buoy	east of the buoy	south of the buoy	north of the buoy	D026NG
3	1082	D	Northern right whales can be identified by _____.	whitish patches of skin on top of the head	"V" shaped blow easily visible from ahead or behind	no dorsal fin on the back	All of the above	
3	1083	C	Magnets are placed in horizontal trays in the compass binnacle to compensate for the _____.	induced magnetism in the vessel's horizontal soft iron	change in the magnetic field when the vessel inclines from vertical	permanent magnetism of the vessel	magnetic fields caused by electrical currents in the vicinity	
3	1084	B	As the temperature of an air mass decreases, the _____.	absolute humidity decreases	relative humidity increases	specific humidity decreases	dew point rises	
3	1085	C	A chart position enclosed by a semi-circle is a(n) _____.	fix	estimated position	dead reckoning position	running fix	

3	1086	A	When crossing a front isobars tend to _____.	change from smooth curves within the air mass to sharp bends at the front	change from sharp bends within the air mass to smooth curves at the front	pass smoothly across the front with no change	become closer together at the front and pass through in straight lines	
3	1087	D	The velocity of a rotary tidal current will increase when the Moon is _____.	new	full	at perigee	All of the above	
3	1088	B	Which statement about an estimated position is TRUE?	It is more reliable than a fix based on radar bearings.	It may be based on a single LOP or questionable data.	When a 3-LOP fix plots in a triangle, the center of the triangle is the estimated position.	It is usually based on soundings.	
3	1089	A	You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course 033°T, and bears 248°T at 64 miles from you. What is the course to steer at 13 knots to intercept vessel A?	262°	269°	276°	281°	
3	1090	A	What weather conditions would you expect to find at position A?	Winds NW-W at 15 knots, partly cloudy, and slight seas	winds SW-S at 20 knots, heavy rain, and rough seas	Winds calm, light rain, and calm seas	Winds NE-E at 20 knots, heavy rain, and rough seas	D049NG
3	1091	D	The cardinal mark topmark shown in illustration D024NG represents which quadrant?	Northern	Eastern	Southern	Western	D024NG
3	1092	B	The wind velocity is higher in the dangerous semicircle of a tropical cyclone because of the _____.	extension of the low pressure ridge	wind circulation and forward motion of the storm	recurvature effect	direction of circulation and pressure gradient	
3	1093	A	The Flinders bar on a magnetic compass compensates for the _____.	induced magnetism in vertical soft iron	induced magnetism in horizontal soft iron	permanent magnetism in ship's steel	vessel's inclination from the vertical	
3	1094	B	A light, feathery deposit of ice caused by the sublimation of water vapor directly into the crystalline form, on objects whose temperatures are below freezing, is called _____.	dew	frost	glaze	snow	
3	1095	C	The celestial coordinate of a star that is relatively constant in value is the _____.	Greenwich hour angle	local hour angle	sidereal hour angle	meridian angle	
3	1096	D	With the passage of an occluded front the temperature _____.	rises rapidly	remains about the same	drops rapidly	depends on whether warm type or cold type occlusion	
3	1097	A	The velocity of a rotary tidal current will be decreased when the Moon is _____.	at apogee	new	full	All of the above	
3	1098	B	A chart position enclosed by a square is a(n) _____.	fix	estimated position	dead reckoning position	running fix	

3	1099	B	You are enroute to assist vessel A. Vessel A is underway at 6 knots on course 133°T, and bears 343°T at 92 miles from you. What is the course to steer at 9 knots to intercept vessel A?	356°	003°	022°	038°	
3	1101	B	In the North Sea area, you sight a buoy showing an uninterrupted quick-flashing white light. Which of the four topmarks shown will this buoy be fitted with under the IALA Buoyage system?	A	B	C	D	D031NG
3	1102	C	What is the approximate geographic range of Race Rock Light, NY, if your height of eye is 27 feet (8.2 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS" .	9.9 nm	14.3 nm	15.7 nm	17.4 nm	
3	1103	A	The vertical component of the Earth's magnetic field causes induced magnetism in vertical soft iron. This changes with latitude. What corrects for this coefficient of the deviation?	The Flinders bar	The heeling magnet	Quadrantal soft iron spheres	Bar magnets in the binnacle	
3	1104	D	Which condition(s) is(are) necessary for the formation of dew?	Clear skies	Calm air	Earth's surface cooler than the dew point of the air	All of the above	
3	1105	C	The Light List shows that a navigational light has a nominal range of 22 miles and a height above water of 48 feet (14.6 meters). Your height of eye is 35 feet (10.7 meters) and the visibility is 20.0 miles. At what approximate range will you first sight the light?	10.5 nm	13.2 nm	14.7 nm	32.0 nm	
3	1106	B	The legend/symbol which designates an occluded front is represented by a _____.	red line	purple line	blue line	dashed blue line	
3	1108	B	Preferred channel buoys indicate the preferred channel to transit by _____.	odd or even numbers	the color of their top band	the location of the buoy in the channel junction	the buoy's light rhythms	
3	1109	D	You are on course 146°T. To check the speed of your vessel you should observe a celestial body on which bearing?	000°	056°	090°	146°	
3	1110	B	To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at what time in relation to the predicted time of the favorable current?	At the predicted time	30 minutes before the predicted time	One hour after the predicted time	30 minutes before flood, one hour after an ebb	

3	1111	C	Black double-cone topmarks are the most important feature, by day, of cardinal marks. Which of the four topmarks shown indicates the best navigable water lies to the west of the buoy?	A	B	C	D	D030NG
3	1112	A	Considering the general circulation of the atmosphere, the wind system between latitudes 30°N and 60°N is commonly called the _____.	prevailing westerlies	horse latitudes	trade winds	subpolar low pressure belts	
3	1113	B	A single vertical magnet placed underneath the compass in the binnacle is used to compensate for _____.	the horizontal component of the permanent magnetism	deviation caused by the vessel's inclination from the vertical	induced magnetism in the horizontal soft iron	induced magnetism in the vertical soft iron	
3	1114	D	Mechanical lifting of air by the upslope slant of the terrain is called _____.	vertical lifting	convective lifting	advective lifting	topographic lifting	
3	1115	A	Which light characteristic may be used on a special purpose mark?	Flashing	Occulting	Equal interval	Quick flashing	
3	1116	C	When a cold air mass and a warm air mass meet, and there is no horizontal motion of either air mass, it is called a(n) _____.	cold front	occluded front	stationary front	warm front	
3	1118	B	When entering from seaward, a buoy displaying a single-flashing red light indicates _____.	a junction with the preferred channel to the left	the starboard side of the channel	a sharp turn in the channel to the right	a wreck to be left on the vessel's port side	
3	1119	C	The position labeled "D" was plotted because _____.	the vessel's speed changed at 1125	a dead reckoning position is plotted within 30 minutes of a running fix	a dead reckoning position is plotted for each course change	All of the above	D051NG
3	1120	B	You are on course 042°T. To check the course of your vessel you should observe a celestial body on which bearing?	090°	132°	180°	222°	
3	1121	D	The articulated light is superior to other types of buoys because _____.	the radar reflectors reflect better signals	fog horn signals travel farther to sea	it is equipped with strobe lights	it has a reduced watch circle	
3	1122	B	A barometer showing falling pressure indicates the approach of a _____.	high pressure system	low pressure system	high dew point	low dew point	
3	1123	B	What are the only magnetic compass correctors that correct for both permanent and induced effects of magnetism?	Quadrantal spheres	Heeling magnets	Athwartships magnets	Fore-and-aft magnets	

3	1124	B	The region containing 3/4 of the mass of the atmosphere and the region to which are confined such phenomena as clouds, storms, precipitation and changing weather conditions is called _____.	stratosphere	troposphere	stratopause	tropopause	
3	1125	B	The Light List shows that a navigational light has a nominal range of 19 miles and a height above water of 52 feet (15.8 meters). Your height of eye is 42 feet (12.8 meters) and the visibility is 10.0 miles. At what approximate range will you first sight the light?	10.0 miles	16.0 miles	17.3 miles	19.0 miles	
3	1126	A	When a warm air mass is adjacent to a cold air mass, the separation line between the two is called a(n) _____.	front	isobar	isotherm	equipotential line	
3	1127	A	In a river subject to tidal currents, the best time to dock a ship without the assistance of tugs is _____.	at slack water	at flood tide	when there is a following current	at high water	
3	1128	B	In 1981, when would Jupiter and Saturn be visible in temperate latitudes for both evening and morning stars?	10 January	27 March	22 June	8 October	
3	1129	A	The motion of celestial bodies relative to other celestial bodies is known as _____.	space motion	apparent motion	diurnal motion	actual motion	
3	1130	D	During daylight savings time the meridian used for determining the time is located farther _____.	west in west longitude and east in east longitude	east in west longitude and west in east longitude	west	east	
3	1131	B	On navigational aids, what does the light characteristic "Fl(2+1)" mean?	A flashing light combined with a fixed light of greater brightness	Light flashes combined in groups, with a different number of flashes in each group	A light showing groups of two or more flashes at regular intervals	A fixed light varied at regular intervals by groups of two or more flashes of greater brightness	
3	1132	B	On charts of U.S. waters, a magenta marking is NOT used for marking a _____.	radio beacon	5-fathom curve	prohibited area	lighted buoy	
3	1133	C	Which compensates for errors introduced when the vessel heels over?	The soft iron spheres on the arms of the binnacle	Magnets placed in trays inside the binnacle	A single vertical magnet beneath the compass	The Flinders bar	
3	1134	D	The Earth's irregular heating is caused by _____.	the time of day	the seasons	geography	All of the above	
3	1135	A	A position on the Earth has a longitude of 74°10'E. Its celestial counterpart would have a _____.	GHA of 285°50'	SHA of 74°10'	SHA of 285°50'	LHA of 74°10'E	

3	1136	A	When a warm air mass overtakes and replaces a cold air mass, the contact surface is called a(n) _____.	warm front	cold front	line squall	occluded front	
3	1137	A	When the declination of the Moon is 0°12.5'S, you can expect some tidal currents in Gulf Coast ports to _____.	become weak and variable	exceed the predicted velocities	become reversing currents	have either a double ebb or a double flood	
3	1138	D	On approaching the English Channel on course 080°T, you note the symbol YBY near a charted buoy. You must pass _____.	northward of the buoy	southward of the buoy	eastward of the buoy	westward of the buoy	
3	1139	B	A star is observed at lower transit. The line of position derived from this sight is _____.	on the prime vertical	a latitude line	a longitude line	of no special significance	
3	1140	B	What is the light characteristic of a lighted, preferred-channel buoy?	Group flashing	Composite group flashing	Interrupted quick flashing	Fixed and flashing	
3	1141	C	What is characteristic of an isophase light?	4 sec. flash, 2 sec. eclipse, 3 sec. flash, 2 sec. eclipse	2 sec. flash, 5 sec. eclipse	1 sec. flash, 1 sec. eclipse	6 sec. flash, 3 sec. eclipse	
3	1142	C	Which weather conditions would you expect to find 100 miles East of position "B"?	Winds NW at 20.5 knots, steady warm temperature, high seas	Winds calm, falling temperature, clear skies, high seas	Winds WSW, steady temperature, scattered clouds, moderate seas	None of the above	D049NG
3	1144	B	Freezing salt water spray should be anticipated when the air temperature drops below what temperature?	32°F (0.0°C)	28°F (-2.2°C)	0°F (-17.8°C)	-40°F (-28.9°C)	
3	1145	A	The GHA of a star _____.	increases at a rate of approximately 15° per hour	increases at a rate of approximately 4° per hour	decreases at a rate of approximately 15° per hour	decreases at a rate of approximately 4° per hour	
3	1146	D	What is true about a front?	A front is a boundary between two air masses.	There are abrupt temperature differences on opposite sides of a front.	The pressure tendencies are different on opposite sides of a front.	All of the above	
3	1147	C	To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at which time in relation to the predicted time of the favorable current?	One hour after	At the predicted time	30 minutes before	30 minutes before flood, one hour after an ebb	
3	1148	D	The numeral in the center of a wind rose circle on a pilot chart indicates the _____.	total number of observations	average wind force on the Beaufort scale	average wind force in knots	percentage of calms	

3	1149	A	You are entering port and have been instructed to anchor, as your berth is not yet available. You are on a SW'ly heading, preparing to drop anchor, when you observe the range lights, as shown, on your starboard beam. You should _____.	ensure your ship will NOT block the channel or obstruct the range while at anchor	drop the anchor immediately as the range lights mark an area free of obstructions	drop the anchor immediately as a change in the position of the range lights will be an indication of dragging anchor	NOT drop the anchor until the lights are in line	D047NG
3	1150	A	You are on course 312°T. To check the speed of your vessel you should observe a celestial body on which bearing?	312°	000°	090°	222°	
3	1151	D	Buoys are marked with reflective material to assist in their detection by searchlight. Which statement is TRUE?	A safe-water buoy will display red and white vertical stripes of reflective material.	All reflective material is white because it is the most visible at night.	A special-purpose mark will display either red or green reflective material to agree with its shape.	A preferred-channel buoy displays either red or green reflective material to agree with the top band of color.	
3	1152	B	When using GPS without Selective Availability, you may expect your horizontal accuracy to be better than _____.	3 meters	20 meters	100 meters	200 meters	
3	1153	B	Heeling error is defined as the change of deviation for a heel of _____.	2°While the vessel is on an intercardinal heading	1°While the vessel is on a compass heading of 000°	2° and is constant on all headings	1° while the vessel is on a compass heading of 180°	
3	1154	C	The speed at which an ocean wave system advances is called _____.	wave length	ripple length	group velocity	wave velocity	
3	1155	B	Which aid is NOT marked on a chart with a magenta circle?	Radar station	Aero light	Radio beacon	Radar transponder beacon	
3	1156	A	When cold air displaces warm air you have a(n) _____.	cold front	occluded front	stationary front	warm front	
3	1157	D	How many slack tidal currents usually occur each day on the east coast of the United States?	One	Two	Three	Four	
3	1158	C	What type of cloud is indicated by the number 5 in illustration D039NG?	Cirrostratus	Cirrocumulus	Altocumulus	Nimbostratus	D039NG
3	1159	D	Two navigational hazards are located near to each other, but each is marked by an individual cardinal buoyage system. The buoys of one cardinal system may be identified from the other system by _____.	the differing light colors	one system having odd numbers while the other system has even numbers	one system using horizontal bands while the other system uses vertical stripes	the difference in the periods of the light	
3	1160	C	What will be the velocity of the tidal current at 0.2 mile SSW of Clason Point, NY, at 1125 on 17 April 1983?	0.5 knot	0.8 knot	1.1 knots	1.9 knots	

3	1161	C	What is characteristic of an occulting light?	1 sec. flash, 2 sec. eclipse, 1 sec. flash, 5 sec. eclipse	5 sec. flash, 5 sec. eclipse	4 sec. flash, 2 sec. eclipse, 3 sec. flash, 2 sec. eclipse	6 sec. flash, 6 sec. eclipse	
3	1162	C	A line connecting all possible positions of your vessel at any given time is a _____.	longitude line	latitude line	line of position	fix	
3	1163	B	The total magnetic effects which cause deviation of a vessel's compass can be broken down into a series of components which are referred to as _____.	divisional parts	coefficients	fractional parts	equations	
3	1164	B	The largest waves (heaviest chop) will usually develop where the wind blows _____.	at right angles to the flow of the current	against the flow of the current	in the same direction as the flow of the current	over slack water	
3	1165	B	Which statement concerning the chartlet is TRUE? (Soundings and heights are in meters)	Maury lightship is visible for 17 miles.	There is a dangerous eddy southeast of Beito Island.	There is a 12-meter deep west of Beito Island and inside the 5-meter line.	The bottom to the south-southeast of the lightship is soft coral.	D010NG
3	1166	D	A series of brief showers accompanied by strong, shifting winds may occur along or some distance ahead of a(n) _____.	upper front aloft	cyclone	occluded front	cold front	
3	1167	B	The velocity of the current in large coastal harbors is _____.	unpredictable	predicted in Tidal Current Tables	generally constant	generally too weak to be of concern	
3	1168	D	Which type of cloud is indicated by the number 4?	Altocumulus	Cirrostratus	Cumulus	Altostratus	DO39NG
3	1169	A	The symbols shown are used on radio facsimile weather charts. The symbol indicated at letter "O" represents _____.	sandstorms	thunderstorms	snow	rain showers	D042NG
3	1170	B	Which statement concerning the illustration is correct? (Soundings and heights are in meters)	Maury Lightship swings about her anchor on a circle with a 21-meter diameter.	The sunken wreck southwest of Beito Island shows the hull or superstructure above the sounding datum.	There is a 12-meter deep hole inside the 5-meter curve just west of Beito Island.	The position of the lightship is indicated by the center of the star on the symbol's mast.	D010NG
3	1171	A	A light that has a light period shorter than its dark period is described as _____.	flashing	pulsating	occulting	alternating	
3	1173	C	When adjusting a magnetic compass for error, a deviation table should be made _____.	before correcting for any deviation	after correcting for variation	after adjusting the fore-and-aft and athwartships permanent magnets	before the quadrantal correctors are placed on the compass	

3	1174	D	Your vessel is enroute from Japan to Seattle and is located at position I on the weather map. You should experience which weather condition?	Clear skies with warm temperatures	Steady precipitation	Overcast skies with rising temperature	Thundershowers	D013NG
3	1175	B	Solid green arrows on the main body of a pilot chart indicate _____.	prevailing wind directions	prevailing ocean current directions	probable surface current flow	shortest great circle routes	
3	1176	C	After a cold front passes, the barometric pressure _____.	drops, and the temperature drops	drops, and the temperature rises	rises, and the temperature drops	rises, and the temperature rises	
3	1177	A	The magnitude of three stars is indicated. Which star is the brightest?	Canopus - 0.9	Vega + 0.1	Antares + 1.2	Cannot be determined; magnitude indicates size not brightness	
3	1178	B	The range of tide is the _____.	distance the tide moves out from the shore	difference between the heights of high and low tide	duration of time between the high and low tide	maximum depth of the water at high tide	
3	1180	C	You are on course 238°T. To check the course of your vessel you should observe a celestial body on which bearing?	180°	238°	328°	090°	
3	1181	D	An occulting light is one in which _____.	the period of darkness exceeds the period of light	there is only a partial eclipse of the light	the periods of light and darkness are equal	the period of light exceeds the period of darkness	
3	1182	D	Referring to the illustration, which wind speed is reported in position C?	3 knots	10 knots	20 knots	30 knots	D049NG
3	1183	B	The principal purpose of magnetic compass adjustment is to _____.	reduce the variation as much as possible	reduce the deviation as much as possible	reduce the magnetic dip as much as possible	allow the compass bowl to swing freely on its gimbals	
3	1184	A	Your position X is at LAT 35°S. Which winds are you experiencing?	Northeasterly	Northwesterly	Southeasterly	Southwesterly	D009NG
3	1185	D	An orange and white buoy with a rectangle on it displays _____.	directions	distances	locations	All of the above	
3	1186	B	As a cold front passes an observer, pressure _____.	drops and winds become variable	rises and winds become gusty	drops and winds become gusty	rises and winds become variable	
3	1187	C	Off Barnegat, NJ, with the wind coming out of the east, the wind-driven current will be flowing approximately _____.	016°	106°	254°	286°	
3	1188	C	The magnitude of three stars is indicated. Which star is the brightest?	Antares + 1.2	Altair + 0.9	Vega + 0.1	Cannot be determined; magnitude indicates size not brightness	

3	1189	D	Concerning a celestial observation, the azimuth angle is measured from the principal vertical circle to the _____.	Greenwich celestial meridian	hour circle of the body	local celestial meridian	vertical circle of the body	
3	1191	C	You plot a fix using three lines of position and find they intersect in a triangle. The actual position of the vessel _____.	is outside of the triangle	may be anywhere in the triangle	may be inside or outside of the triangle	is the geometric center of the triangle	
3	1193	C	If a ship is proceeding towards the magnetic equator, the uncorrected deviation due to permanent magnetism _____.	increases	remains the same	decreases	is unimportant and may be neglected	
3	1194	A	In the Northern Hemisphere, an observer at point II in the weather system should experience a wind shift from the _____.	southwest, clockwise to northwest	northeast, clockwise to west-southwest	northeast, counterclockwise to northwest	east, counterclockwise to south-southwest	D014NG
3	1195	C	A position that is obtained by applying estimated current and wind to your vessel's course and speed is a(n) _____.	dead reckoning position	fix	estimated position	None of the above	
3	1196	D	In the Northern Hemisphere, gusty winds shifting clockwise, a rapid drop in temperature, thunderstorms or rain squalls in summer (frequent rain/snow squalls in winter) then a rise in pressure followed by clearing skies, indicate the passage of a(n) _____.	warm front	tropical cyclone	anticyclone	cold front	
3	1197	B	Off Fire Island, NY with winds from the southwest, the average wind-driven current flows in a direction of _____.	014°	076°	170°	256°	
3	1198	C	The Illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates a dust storm?	I	H	O	P	D042NG
3	1199	C	The Sailing Directions (Enroute) contain information on _____.	well-charted inner dangers	port facilities	coastal anchorages	offshore traffic separation schemes	
3	1200	D	You want to transit Pollock Rip Channel, MA, on 6 April 1983. What is the period of time around the 0955 (ZD +5) slack in which the current does not exceed 0.3 knot?	0911 to 0955	0940 to 1010	0955 to 1044	0935 to 1017	
3	1201	A	What is NOT true concerning color sectors of lights?	Color sectors are expressed in degrees from the light toward the vessel.	Color sectors may indicate dangerous waters.	Color sectors may indicate the best water across a shoal.	Color sectors may indicate a turning point in a channel.	
3	1202	B	As shown in the illustration, which wind speeds are reported at position A?	10 knots	15 knots	20 knots	25 knots	D049NG

3	1203	D	If the compass heading and the magnetic heading are the same then _____.	the deviation has been offset by the variation	there is something wrong with the compass	the compass is being influenced by nearby metals	there is no deviation on that heading	
3	1205	A	How is the annual rate of change for magnetic variation shown on a pilot chart?	Gray lines on the uppermost inset chart	Red lines on the main body of the chart	In parenthesis on the lines of equal magnetic variation	Annual rate of change is not shown.	
3	1206	B	Brief, violent showers frequently accompanied by thunder and lightning are usually associated with _____.	passage of a warm front	passage of a cold front	winds shifting counterclockwise in the Northern Hemisphere	stationary high pressure systems	
3	1207	A	What will be the velocity of the tidal current at New London Harbor Entrance, CT, at 1615 EST (ZD +5) on 26 December 1983?	0.2 knot	0.4 knot	0.7 knot	0.9 knot	
3	1208	A	Which type of cloud is indicated by the number 1?	Cirrus	Altostratus	Altocumulus	Nimbostratus	D039NG
3	1209	D	You are on course 201°T. To check the speed of your vessel you should observe a celestial body on which bearing?	090°	111°	180°	201°	
3	1210	C	You are inbound in a channel marked by a range. The range line is 309°T. You are steering 306°T and have the range in sight as shown. The range continues to open. What action should you take?	Alter course to the right to 309°T or more to bring the range in line.	Maintain course as it is normal for the range to open as you get close.	Alter course to the left until the range closes, then steer to the left of 306°T.	Alter course to the left to close the range, then alter course to 309°T.	D047NG
3	1211	D	Red sectors of navigation lights warn mariners of _____.	floating debris	heavily trafficked areas	recently sunken vessels	shoals or nearby land	
3	1213	A	If the magnetic heading is greater than the compass heading, the deviation is _____.	east	west	north	south	
3	1214	D	The letter B in the diagram represents the _____.	sensible horizon	visible horizon	celestial horizon	geoidal horizon	D006NG
3	1215	C	Daylight savings time is a form of zone time that adopts the time _____.	two zones to the east	two zones to the west	one zone to the east	one zone to the west	
3	1216	A	In the Northern Hemisphere, winds veering sharply to the west or northwest with increasing speed are indications that a _____.	cold front has passed	low pressure center is approaching	stationary front exists	high pressure center has passed	
3	1217	D	What will be the velocity and direction of the tidal current at Old Ferry Point, NY, at 1340 EST (ZD +5) on 5 February 1983?	0.8 knot at 060°T	0.8 knot at 240°T	1.0 knot at 076°T	1.4 knots at 076°T	
3	1219	D	Which sextant in illustration D043NG reads 29°42.5'?	A	B	C	D	D043NG
3	1220	D	Under the U.S. Aids to Navigation System, a lighted buoy with a spherical topmark marks _____.	the position of underwater cables	a hazard to navigation	the port side of the channel	safe water	

3	1221	B	On a chart, the characteristic of the light on a lighthouse is shown as flashing white with a red sector. The red sector _____.	indicates the limits of the navigable channel	indicates a danger area	is used to identify the characteristics of the light	serves no significant purpose	
3	1222	D	On entering from seaward, a starboard side daymark will _____.	show a fixed red light if lighted	show a Morse (A) white light	be square in shape	have an even number if numbered	
3	1223	B	The difference between magnetic heading and compass heading is called _____.	variation	deviation	compass error	drift	
3	1224	D	NGA (NIMA) charts are adopting the metric system. In order to change a charted depth in meters to feet you may use the conversion table found _____.	in the Light List	in Bowditch Vol. II	on the chart	All of the above	
3	1225	D	The term "Western Rivers," when it refers to regulations requiring towing vessels to carry navigational-safety equipment, charts or maps, and publications, includes the _____.	Mississippi River and its tributaries	Port Allen - Morgan City Alternate Route	Red River and the Old River	All of the above	
3	1226	B	Cumulonimbus clouds are most likely to accompany a(n) _____.	high pressure system	cold front	warm front	occluded front	
3	1227	C	What will be the direction and velocity of the tidal current at Provincetown Harbor, MA, at 1405 DST (ZD +4) on 5 May 1983?	0.0 knot at 135°T	0.2 knot at 135°T	0.4 knot at 315°T	0.6 knot at 315°T	
3	1228	C	"An electronic or electric device that indicates the rate of turn of a vessel," defines a/an _____.	magnetic compass	gyro-compass	swing meter	odometer	
3	1229	B	The initial great circle course angle between LAT 23°00'S, LONG 42°00'W and LAT 34°00'S, LONG 18°00'E is 063.8°. What is the true course?	063.8°T	116.2°T	243.8°T	296.2°T	
3	1230	C	Weather forecast messages are usually _____.	given only to TV stations	transmitted only by commercial broadcast stations	broadcast in plain language	broadcast immediately on VHF Channel 16 and 2182 kHz	
3	1231	C	Some lights used as aids to marine navigation have a red sector to indicate a danger area. How are the limits of a colored sector of light listed in the Light List?	Geographical positions outlining the area of the sector	True bearings as observed from the light toward a vessel	True bearings as observed from a vessel toward the light	Bearings given in the Light List are always magnetic	
3	1232	A	Entering from seaward, triangular-shaped daymarks are used to mark _____.	the starboard side of the channel	the centerline of the channel	an obstruction where the preferred channel is to starboard	special purpose areas	

3	1233	C	Deviation is the angle between the _____.	true meridian and the axis of the compass card	true meridian and the magnetic meridian	magnetic meridian and the axis of the compass card	axis of the compass card and the degaussing meridian	
3	1234	B	Which information does the outer ring of a compass rose on a nautical chart provide?	Variation	True directions	Magnetic directions	Annual rate of variation change	
3	1235	C	Weather information provided by the National Weather Service (NWS) advisories should be used along with _____.	the Tide Tables and Tidal Current Tables	the local Notice to Mariners	weather maps and local knowledge	any U.S. Coast Pilot	
3	1236	B	After the passage of a cold front the visibility_____. _	does not change	improves rapidly	improves only slightly	becomes poor	
3	1237	C	What will be the velocity of the tidal current at Port Royal, VA, at 1505 DST (ZD +4) on 4 June 1983?	0.0 knot	0.1 knot	0.4 knot	0.7 knot	
3	1238	B	What will be the height of tide at Three Mile Harbor Entrance, Gardiners Bay, NY, at 0700 (ZD +5) on 14 Nov 1983?	1.1 feet (0.3 meters)	1.7 feet (0.5 meters)	1.9 feet (0.6 meters)	2.2 feet (0.7 meters)	
3	1239	A	While taking weather observations, you determine that the wind is blowing from the northeast. You would record the wind direction in the weather log as _____.	045°	090°	135°	225°	
3	1240	D	Weather information is available from _____.	commercial radio broadcasts	the Coast Guard on scheduled marine information broadcasts	VHF-FM continuous marine weather broadcasts provided by the National Weather Service	All of the above	
3	1241	A	Which picture shows a fixed and flashing light?	A	B	C	D	D034NG
3	1242	A	Daymarks marking the starboard side of the channel when going towards the sea are _____.	green squares	green triangles	red squares	red triangles	
3	1243	D	Magnetic heading differs from compass heading by _____.	compass error	true heading	variation	deviation	
3	1245	A	You can follow the approach of a dangerous cyclonic storm by inspecting _____.	a newspaper, a weather map, a weather fax, or a weather forecast	the National Weather Service Observing Handbook No.1, Marine Surface Observations	the Coast Pilot or Sailing Directions	the sky overhead	
3	1246	D	What weather change accompanies the passage of a cold front in the Northern Hemisphere?	Wind shift from northeast clockwise to southwest	Steady dropping of barometric pressure	Steady precipitation, gradually increasing in intensity	A line of cumulonimbus clouds	

3	1247	A	What is the predicted velocity of the tidal current 2 miles west of Southwest Ledge for 2330 DST (ZD +4) on 7 September 1983?	1.3 knots	1.6 knots	1.9 knots	2.2 knots	
3	1248	D	On 6 July 1983, at 1520 DST (ZD +4) what will be the predicted height of tide at Newburgh, NY?	2.1 feet	1.7 feet	1.2 feet	0.6 foot	
3	1249	D	What is the light characteristic of a lighted, preferred-channel buoy?	Fixed and flashing	Continuous quick	Isophase	Composite group-flashing	
3	1250	A	Daylight savings time is a form of zone time that adopts the time _____.	one zone to the east	one zone to the west	two zones to the east	two zones to the west	
3	1251	C	A List of Lights entry (L Fl) is a single flashing light which shows a long flash of not less than _____.	1.0 second duration	1.5 seconds duration	2.0 seconds duration	3.0 seconds duration	
3	1252	A	Port side daymarks may be _____.	numbered	octagonal	black and white	of any shape	
3	1253	A	The horizontal angle between the magnetic meridian and the north-south line of the magnetic compass is _____.	deviation	variation	compass error	dip	
3	1254	B	Lighted white and orange buoys must show which color light?	Orange	White	Red	Alternating yellow and white	
3	1255	D	The wind velocity is higher in the dangerous semicircle of a tropical cyclone because of the _____.	extension of the low pressure ridge	direction of circulation and pressure gradient	recurvature effect	the wind circulation and forward motion of the storm	
3	1256	A	A cold front moving in from the northwest can produce _____.	thunderstorms, hail, and then rapid clearing	increasing cloud cover lasting for several days	lengthy wet weather	low ceilings with thick cirrus clouds	
3	1257	A	What will be the velocity of the tidal current 1.0 mile southwest of Lewis Pt., RI, at 1501 EST (ZD +5) on 4 April 1983?	0.7 knot	1.4 knots	1.6 knots	1.9 knots	
3	1258	D	You should log all barometer readings taken at sea _____.	regularly	at least once during each watch	more often under changeable weather conditions	All of the above	
3	1259	A	General information on enroute weather and climate is found in _____.	the Sailing Directions and the Coast Pilot	a weather fax	the Local Notice to Mariners	the Light List	
3	1260	B	On 26 February 1983, at 1750 EST (ZD +5) what will be the predicted height of tide at New Haven (city dock), CT?	-.3 foot (-0.1 meter)	-.6 foot (-0.2 meter)	1.3 feet (0.4 meter)	1.6 feet (0.5 meter)	
3	1261	B	A light having characteristics which include color variations is defined as _____.	switching	alternating	oscillating	fluctuating	
3	1262	D	A safe water daymark has what shape?	Triangular	Diamond	Circular	Octagonal	

3	1263	C	The compass deviation changes as the vessel changes _____.	geographical position	speed	heading	longitude	
3	1265	A	When reporting wind direction, you should give the direction in _____.	true degrees	magnetic compass degrees	relative degrees	isobaric degrees	
3	1266	C	A line of clouds, sharp changes in wind direction, and squalls are most frequently associated with a(n) _____.	occluded front	warm front	cold front	warm sector	
3	1267	B	What will be the velocity of the tidal current at Coxsackie, NY, at 0945 EST (ZD +5) on 11 March 1983?	0.3 knot	0.7 knot	1.2 knots	1.9 knots	
3	1268	D	On a nautical chart, the inner ring of a compass rose indicates _____.	true directions	compass error	deviation	magnetic directions	
3	1269	C	The Light List indicates that a light has a nominal range of 14 miles and is 42 feet (12.7 m) high. If the visibility is 16 miles and your height of eye is 20 feet (6.1 m), at which approximate distance will you sight the light?	20.1 miles	16.0 miles	12.8 miles	7.6 miles	
3	1271	D	Which word indicates color variation in the characteristics of a light?	Opposing	Changing	Reversing	Alternating	
3	1272	B	What are the colors of a mid-channel daymark?	Black and red	Red and white	Green and red	Green and white	
3	1273	B	Deviation changes with a change in _____.	latitude	heading	longitude	sea conditions	
3	1274	B	The Illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates a sandstorm?	H	O	P	K	D042NG
3	1275	C	How is variation indicated on a small-scale nautical chart?	Magnetic compass table	Magnetic meridians	Isogonic lines	Variation is not indicated on small-scale nautical charts.	
3	1276	D	Which weather change accompanies the passage of a cold front in the Northern Hemisphere?	Wind shift from northeast, clockwise to southwest	Steady dropping of barometric pressure	Steady precipitation, gradually increasing in intensity	A line of cumulonimbus clouds	
3	1277	A	The velocity and direction of the tidal current at Port Morris, NY, at 1135 DST (ZD +4) on 13 May 1983 will be _____.	negligible at 220°T	3.1 knots at 045°T	1.2 knots at 220°T	1.0 knot at 045°T	
3	1278	C	The difference between the heights of low and high tide is the _____.	depth	distance	range	period	
3	1279	B	For 3 November 1983, at 0830 EST (ZD +5) at Catskill, NY, what is the predicted height of tide?	+0.1 foot (+0.0 m)	-0.6 foot (-0.2 m)	+0.9 foot (+0.3 m)	-1.3 feet (-0.4 m)	

3	1280	B	A current perpendicular to a vessel's track has the greatest effect on the vessel's course made good _____.	at high vessel speeds	at low vessel speeds	in shallow water	in deep water	
3	1281	C	The time required for a lighted aid to complete a full cycle of light changes is listed in the Light List as the _____.	set	frequency	period	function	
3	1282	C	Entering from sea, a daymark on the port side of the channel would be indicated on a chart by a _____.	red triangle with the letter R	white triangle with the letters RG	green square with the letter G	white square with the letters GR	
3	1283	B	The error in a magnetic compass caused by the vessel's magnetism is called _____.	variation	deviation	compass error	bearing error	
3	1284	A	The Sailing Directions (Enroute) contain information on all of the following EXCEPT _____.	ocean currents	outer dangers to navigation	tidal currents	major port anchorages	
3	1285	D	You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course 033°T, and bears 248°T at 64 miles from you. What is the time to intercept if you make 13 knots?	4h 55m	4h 36m	3h 59m	3h 44m	
3	1286	D	Which condition will occur after a cold front passes?	Temperature rises	Stratus clouds form	Pressure decreases	Humidity decreases	
3	1287	A	What will be the velocity of the tidal current 4.5 miles east of Smith Point, VA, at 0630 DST (ZD +4) on 6 May 1983?	0.3 knot	0.5 knot	0.7 knot	1.0 knot	
3	1288	C	Your vessel will be docking at Chester, PA, during the evening of 22 April 1983. The chart shows a depth of 20 feet (6.1 meters) at the pier. What will be the depth of water available at 2310 EST (ZD +5)?	19.2 feet (5.9 meters)	20.8 feet (6.3 meters)	24.7 feet (7.5 meters)	25.8 feet (7.9 meters).	
3	1289	D	A body can only be observed at lower transit when _____.	the declination is the opposite name to the latitude	the algebraic sum of the colatitude and declination exceeds 90°	the observer is in high latitudes above either polar circle	the body is circumpolar	
3	1290	C	In addition to the National Weather Service, what agency provides plain-language radio weather advisories for the coastal waters of the United States?	National Geospatial-Intelligence Agency	U.S. Hydrological Survey	U.S. Coast Guard	American Meteorological Service	
3	1291	D	The period of a lighted aid to navigation refers to the _____.	date of construction or establishment	length of time between flashes of the light	time required for the longest flash of each cycle	time required for the light to complete each cycle	

3	1292	A	A triangular daymark would be colored _____.	red	red and white	green	green and white	
3	1293	C	Deviation is caused by _____.	changes in the earth's magnetic field	nearby magnetic land masses or mineral deposits	magnetic influence inherent to that particular vessel	the magnetic lines of force not coinciding with the lines of longitude	
3	1295	C	The best estimate of the wind direction at sea level can be obtained from observing the direction of the _____.	cloud movement	vessel heading	waves	swells	
3	1296	D	After a cold front passes the barometric pressure usually _____.	fluctuates	remains the same	remains the same, with clouds forming rapidly	rises, often quite rapidly, with clearing skies	
3	1297	C	What will be the velocity of the tidal current at Bournedale, MA, at 1135 DST (ZD +4) on 3 May 1983?	1.1 knots	2.3 knots	3.0 knots	3.6 knots	
3	1298	A	The vertex of a great circle track is in LONG 109°E. An eastbound vessel would cross the equator in LONG _____.	161°W	161°E	19°E	19°W	
3	1299	D	What will be the time (ZD +5) of the second high tide at Weymouth Fore River Bridge, MA, on 12 November 1983?	1639	1643	1647	1650	
3	1300	A	You are approaching a sea buoy which emits a racon signal. This signal is triggered by which type of radar?	3 cm	10 cm	Both 3 cm and 10 cm	Signal does not depend on radar type.	
3	1301	D	The four standard light colors used for lighted aids to navigation are red, green, white, and _____.	purple	orange	blue	yellow	
3	1302	A	What feature(s) of a daymark is (are) used to identify the beacon upon which it is mounted?	Color and shape	Size	Method of construction	Signal characteristics	
3	1303	C	Compass deviation is caused by _____.	magnetism from the earth's magnetic field	misalignment of the compass	magnetism within the vessel	a dirty compass housing	
3	1304	A	The distance to the nearest vertex from any point on a great circle track cannot exceed _____.	5400 nautical miles	5840 nautical miles	6080 nautical miles	10,800 nautical miles	
3	1305	A	Complete information on weather broadcasts throughout the world is contained in _____.	Selected Worldwide Marine Weather Broadcasts	your local newspaper	the Notice to Mariners	the daily weather map	
3	1306	D	What type of clouds are associated with a cold front?	Altostratus and fracto-cumulus	Altostratus and cirrus	Cirrus and cirrostratus	Cumulus and cumulonimbus	

3	1307	B	What will be the velocity of the tidal current southwest of Hunts Point, NY, at 0932 EST (ZD +5) on 16 March 1983?	0.9 knot	1.5 knots	1.8 knots	2.3 knots	
3	1308	B	On a voyage from Cape Town to London, the favorable ocean current off the coast of Africa is the _____.	Canary Current	Benguela Current	Agulhas Current	South Atlantic Current	
3	1309	B	When recording the wind direction in the weather log, you would report the _____.	direction the wind is blowing toward	direction the wind is blowing from	duration of the maximum gust of wind	wind chill factor	
3	1310	C	An urgent marine storm warning message would be broadcast on _____.	2670 KHz	156.80 MHz (VHF-FM Ch. 16)	157.10 MHz (VHF-FM Ch. 22A)	None of the above	
3	1311	C	What is the characteristic of a quick light?	Shows groups of 2 or more flashes at regular intervals	Durations of light and darkness are equal	Shows not less than 60 flashes per minute	Shows quick flashes for about 5 seconds followed by a 1 second dark period	
3	1312	A	Which factor(s) is/are used to develop the charted information of a lighthouse?	Height and intensity of the light	Height of the light and the observer	Height of the observer and the intensity of the light	Height of the light only	
3	1313	B	Variation in a compass is caused by _____.	worn gears in the compass housing	magnetism from the earth's magnetic field	magnetism within the vessel	lack of oil in the compass bearings	
3	1314	B	The Illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates hail?	N	H	Q	F	D042NG
3	1315	C	What is a lighted safe water mark fitted with to aid in its identification?	Red and white retroreflective material	A sequential number	A spherical topmark	A red and white octagon	
3	1316	D	When a warm air mass overtakes a cold air mass, the contact surface is called a _____.	line squall	water spout	cold front	warm front	
3	1317	B	What will be the velocity and direction of the tidal current at Mobile River Entrance, AL, at 0915 CDT (ZD +5) on 13 May 1983?	0.1 knot at 333°T	0.3 knot at 333°T	0.7 knot at 151°T	1.8 knots at 025°T	

3	1318	B	You are to sail from Elizabethport, N.J., on 17 November 1983 with a maximum draft of 27 feet. You will pass over an obstruction in the channel near Sandy Hook that has a charted depth of 25.5 feet. The steaming time from Elizabethport to the obstruction is 1h 50m. What is the earliest time (ZD +5) you can sail on 17 November and pass over the obstruction with 2 feet of clearance?	0059	0121	0159	0221	
3	1319	A	The Sailing Directions (Planning Guide) contain information on all of the following EXCEPT _____.	coastal features	ocean basin environment	ocean routes	military operating areas	
3	1320	A	You are enroute to Savannah, GA, from Recife, Brazil. There is a strong N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	steeper waves, closer together	smoother seas and warmer water	cirrus clouds	long swells	
3	1321	D	A lighthouse can be identified by its _____.	painted color	light color and phase characteristic	type of structure	All of the above	
3	1322	C	What will be the velocity of the tidal current at Grant's Tomb, 123rd Street, NY, NY, at 1412 EST (ZD +5) on 22 March 1983?	0.5 knot	0.8 knot	1.1 knots	1.3 knots	
3	1323	B	The magnetic compass error which changes with the geographical location of your vessel is called _____.	deviation	variation	compensation	differentiation	
3	1324	A	When daylight savings time is kept, the time of tide and current calculations must be adjusted. One way of doing this is to _____.	add one hour to the times listed under the reference stations	subtract one hour from the time differences listed for the subordinate stations	apply no correction as the times in the reference stations are adjusted for daylight savings time	add 15° to the standard meridian when calculating the time difference	
3	1325	C	You change course entering port and steady up on a range with the lights in line. After a few minutes you observe the range lights as shown. You should alter your heading to the _____.	left, and when the range lights are in line again, resume your original heading	right, and when the range lights are in line again, steer to keep them dead ahead	left, and when the range lights are in line again, steer to keep them in line fine on the starboard bow	right, and when the range lights are in line again, steer to keep them in line fine on the port bow	D047NG
3	1326	C	A cloud sequence of cirrus, cirrostratus, and altostratus clouds followed by rain usually signifies the approach of a(n) _____.	occluded front	stationary front	warm front	cold front	

3	1328	A	What will be the velocity of the tidal current in Bolivar Roads, Texas, at a point 0.5 mile north of Ft. Point, on 23 November 1983 at 0330 CST (ZD +6)?	Slack water	0.8 kt	1.2 kts	3.4 kts	
3	1329	C	Yesterday your chronometer read 03h 01m 56s at the 1500 GMT time tick. Today your chronometer read 03h 01m 54s at the 1500 GMT time tick. What is the chronometer rate?	1m 54s fast	2s fast	-2s	+2s	
3	1330	C	You are located within a stationary high pressure area. Your aneroid barometer is falling very slowly. This indicates a(n) _____.	wind shift of 180°	large increase in wind velocity	decrease in the pressure of the system	increase in the intensity of the system	
3	1331	A	When trying to sight a lighthouse you notice a glare from a town in the background. The range at which the light may be sighted due to this glare is _____.	considerably reduced	increased slightly due to extra lighting	unchanged	increased if the light is red or green due to contrast with the glare	
3	1332	D	The longitude of the upper vertex of a great circle track is 169°E. What is the longitude of the lower vertex?	076°E	169°W	101°W	011°W	
3	1333	A	If a magnetic compass is not affected by any magnetic field other than the Earth's, which statement is TRUE?	Compass error and variation are equal.	Compass north will be true north.	Variation will equal deviation.	There will be no compass error.	
3	1334	D	The Illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "H" represents _____.	ice	snow	rain	hail	D042NG
3	1335	A	Plain language is usually used on marine weather _____.	forecasts	observations	analyses	reports	
3	1336	A	On the approach of a warm front, barometric pressure usually _____.	falls	is steady	is uncertain	rises	
3	1337	A	What will be the time of maximum flood current at Sagamore Bridge on the Cape Cod Canal during the morning of 6 December 1983 (ZD +5)?	0708	0712	0716	1020	
3	1339	C	You are on course 303°T. To check the speed of your vessel you should observe a celestial body on which bearing?	000°	090°	123°	213°	
3	1340	B	The annual change in variation for an area can be found in _____.	the handbook for Magnetic Compass Adjustment, Pub 226	the center of the compass rose on a chart of the area	the compass deviation table	Variation does not change.	
3	1341	B	The height of a light is measured from which reference plane?	Mean low water	Mean high water	Average water level	Geographical sea level	

3	1342	B	An occluded front on a weather map is colored _____.	blue line	purple line	dashed blue line	alternate red and blue line	
3	1343	D	Variation is a compass error that you _____.	can correct by adjusting the compass card	can correct by adjusting the compensating magnets	can correct by changing the vessel's heading	cannot correct	
3	1344	A	Which of the buoy symbols shown indicates a safe water mark?	D	C	B	A	D032NG
3	1346	B	Cirrus clouds followed by cirrostratus then altostratus, stratus, and occasionally nimbostratus indicate the approach of a(n) _____.	cold front	warm front	tropical front	occluded front	
3	1347	C	What will be the velocity of the tidal current south of Doubling Point, ME, at 1357 EST (ZD +5) on 3 April 1983?	0.9 knot	1.3 knots	2.0 knots	2.6 knots	
3	1348	A	Vessels required to have an Automatic Radar Plotting Aid must have a device to indicate the _____.	ECDIS generated trackline	vessel's position	speed of the vessel over the ground or through the water	AIS information of vessels in the vicinity	
3	1349	C	The symbols shown are used on radio facsimile weather charts. Which of these symbols indicates a severe squall line?	F	I	G	H	D042NG
3	1350	B	You are running parallel to the coast and plotting running fixes using bearings of the same object. You are making more speed than assumed for the running fix. In relation to the position indicated by the fix you will be _____.	closer to the coast	farther from the coast	on the track line ahead of the fix	on the track line behind the fix	
3	1351	B	Luminous range is the _____.	maximum distance at which a light may be seen in clear weather	maximum distance at which a light may be seen under existing visibility conditions	maximum distance at which a light may be seen considering the height of the light and the height of the observer	average distance of visibility of the light	
3	1352	C	Weather observations provided by each weather station include all of the following except _____.	temperature	visibility	predicted weather for the next twelve hours	barometric pressure and change in the last three hours	
3	1353	A	The difference in degrees between true north and magnetic north is called _____.	variation	deviation	drift	compass error	

3	1354	B	A ship is in longitude 54°00'W on a true course of 090°. The ship's clocks are on the proper time zone. At what longitude should the clocks be changed to maintain the proper zone time?	45°00'W	52°30'W	60°00'W	67°30'W	
3	1355	D	The parallax of the Moon is greatest when the Moon is _____.	in the zenith at perigee	on the horizon at apogee	at its maximum altitude at apogee	on the horizon at perigee	
3	1356	B	The first indications a mariner will have of the approach of a warm front will be _____.	large cumulonimbus (thunderclouds) building up	high cirrus clouds gradually changing to cirrostratus and then to altostratus	fog caused by the warm air passing over the cooler water	low dark clouds accompanied by intermittent rain	
3	1357	C	You will transit the Cape Cod Canal on 7 November 1983. If you arrive at the R R Bridge at 1655 EST (ZD +5), for what period of time during your transit will you have currents of not more than 0.5 knot?	1631 to 1719	1638 to 1655	1648 to 1702	1655 to 1709	
3	1358	B	Despite weather predictions for continued good weather, a prudent mariner should be alert for all of the following, EXCEPT a sudden _____.	drop in barometric pressure	drop in temperature	wind shift	squall line	
3	1359	B	The distance in longitude from the intersection of a great circle and the equator to the lower vertex is how many degrees of longitude?	45°	90°	135°	180°	
3	1360	B	Which type of cloud is composed entirely of ice crystals and is found at very high altitudes?	Cumulus	Cirrus	Stratus	Nimbostratus	
3	1361	B	The luminous range of a light takes into account the _____.	glare from background lighting	existing visibility conditions	elevation of the light	observer's height of eye	
3	1363	B	True heading differs from magnetic heading by _____.	deviation	variation	compass error	northerly error	
3	1364	D	The Sailing Directions are published in the Enroute format and the _____.	Coastal editions	World Port Index	Pilot format	Planning Guide	
3	1365	A	The same side of the Moon is always toward the Earth, but more than half of its surface has been seen due to libration. Libration in latitude occurs because _____.	the axis of rotation is tilted about 6.5° to the axis of revolution	the speed of revolution varies, while the rotational speed is essentially constant	of the rotational oscillation of the Moon with respect to its radius vector	of augmentation	
3	1366	A	Clouds appearing in the following order: cirrus, cirrostratus, altostratus, stratus, and nimbostratus usually indicate the approach of a(n) _____.	warm front	occluded front	medium front	cold front	

3	1367	B	You want to transit Hell Gate, NY on 23 July 1983. What is the period of time around the AM (ZD +4) slack before ebb when the current will be less than 0.3 knot?	0939 to 0957	0943 to 0953	0844 to 0852	0348 to 0356	
3	1368	C	What area of the earth cannot be shown on a standard Mercator chart?	Equator	Areas including both North and South latitudes	North and South Poles	A narrow band along the central meridian.	
3	1369	D	Which of the following is the most useful factor for predicting weather?	The present reading of the barometer	The previous reading of the barometer	The difference in the barometric readings within the past 24 hours	The rate and direction of change of barometric readings	
3	1372	D	You are enroute to Jacksonville, FL, from San Juan, P.R. There is a fresh N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	cirrus clouds	long swells	smoother seas and warmer water	steeper waves, closer together	
3	1373	A	The reaction of a gyrocompass to an applied force is known as _____.	precession	earth rate	gyroscopic inertia	gravity effect	
3	1374	A	On a working copy of a weather map, a warm front is represented by what color line?	Red	Blue	Alternating red and blue	Purple	
3	1375	B	The Moon rises earlier on succeeding days when the _____.	retardation effect of the revolution of the Moon is greater than the effect due to change of declination	effect due to change of declination is larger than that due to revolution	the revolution effect and the declination effect act in the same direction	the Moon is on the equator and the revolution effect is at a maximum	
3	1376	D	What is typical of warm front weather conditions?	An increase in pressure	A wind shift from southwest to northwest	Scattered cumulus clouds	Steady precipitation	
3	1377	C	What is the velocity of the tidal current at the east end of Pollock Rip Channel at 1700 DST (ZD +4) on 23 July 1983?	0.6 knot ebbing	0.8 knot flooding	1.5 knots flooding	1.9 knots flooding	
3	1378	C	The latitude of the upper vertex of a great circle is 36°N. What is the latitude of the lower vertex?	36°N	0°	36°S	Cannot be determined from the information given	
3	1379	B	The lubber's line on a magnetic compass indicates _____.	compass north	the direction of the vessel's head	magnetic north	a relative bearing taken with an azimuth circle	
3	1380	A	Which type of weather could you expect soon after seeing "hook" or "comma" shaped cirrus clouds?	Rain with the approach of a warm front	Clearing with the approach of a cold front	Continuing fog and rain	The formation of a tropical depression	

3	1381	B	Geographic range is the maximum distance at which a light may be seen under _____.	existing visibility conditions, limited only by the curvature of the Earth	perfect visibility conditions, limited only by the curvature of the Earth	existing visibility conditions, limited only by the intensity of the light	perfect visibility conditions, limited only by interference from background lighting	
3	1382	C	The chart indicates the variation was 3°45'W in 1988, and the annual change is increasing 6'. If you use the chart in 1991 how much variation should you apply?	3°27'W	3°27'E	4°03'W	4°03'E	
3	1383	A	The spin axis of a gyroscope tends to remain fixed in space in the direction in which it is started. How does this gyroscope become north seeking so that it can be used as a compass?	By mechanically or electrically applying forces to precess the gyroscope	By starting the compass with the spin axis in a north/south position	By taking advantage of the property of gyroscopic inertia	The rotation of the Earth (Earth rate) automatically aligns the gyroscope with north, except for speed errors	
3	1385	A	What is the length of the lunar day?	24h 50m 00s	24h 00m 00s	23h 56m 04s	23h 03m 56s	
3	1386	D	The FIRST indications a mariner will have of the approach of a warm front will be _____.	large cumulonimbus clouds building up	low dark clouds with intermittent rain	fog caused by the warm air passing over the cooler water	high clouds gradually followed by lower thicker clouds	
3	1387	C	You will be entering the Mystic River in Connecticut. What is the current at the Highway Bridge at 1900 EST (ZD +5) on 24 January 1983?	2.2 knots flooding	Slack water	Slight ebb	2.5 knots ebbing	
3	1388	D	If you observe a rapid fall of barometric pressure you should _____.	call the Coast Guard to verify the change	know the barometer is not working properly	contact the NWS or a local radio station	prepare for the onset of stormy weather with strong winds	
3	1389	C	A boundary between two air masses is a(n) _____.	lapse rate	isobar	front	continent	
3	1390	D	The fog most commonly encountered at sea is called _____.	conduction fog	radiation fog	frontal fog	advection fog	
3	1391	D	When a light is first seen on the horizon it will disappear again if the height of eye is immediately lowered several feet. When the eye is raised to its former height the light will again be visible. This process is called _____.	checking a light	raising a light	obscuring a light	bobbing a light	
3	1393	B	The directive force of a gyrocompass _____.	increases with latitude, being maximum at the geographic poles	decreases with latitude, being maximum at the geographic equator	is greatest when a vessel is near the Earth's magnetic equator	remains the same at all latitudes	
3	1394	C	A great circle crosses the equator at 17°W. It will also cross the equator at what other longitude?	173°W	117°W	163°E	17°E	

3	1395	A	The lunar day is _____.	longer than a solar day	shorter than a solar day	the same length as the solar day	longer than a solar day during the summer months and shorter in winter months	
3	1396	A	On the approach of a warm front the barometric pressure usually _____.	falls	rises	is steady	is unreliable	
3	1397	B	What will be the velocity of the tidal current at Port Jefferson Harbor Entrance, NY, at 1600 EST (ZD +5) on 23 December 1983?	0.9 knot	1.1 knots	1.6 knots	2.0 knots	
3	1399	D	You are bound for Baltimore via Cape Henry on a 15 knot ship. If the flood at Chesapeake Bay entrance begins at 1800 EST (ZD +5), at what time would you depart from the Chesapeake Bay entrance to have the most favorable current?	1700 hours	1800 hours	1900 hours	2030 hours	
3	1400	B	Which type of cloud is among the most dependable for giving an indication of an approaching weather system?	Cumulus	Altostratus	Cumulostratus	Nimbus	
3	1401	B	The maximum distance at which a light may be seen under existing visibility conditions is called _____.	nominal range	luminous range	charted range	geographic range	
3	1402	D	As a vessel changes course to starboard, the compass card in a magnetic compass _____.	first turns to starboard then counterclockwise to port	also turns to starboard	turns counterclockwise to port	remains aligned with compass north	
3	1403	A	Which statement about the gyrocompass is FALSE?	Its accuracy remains the same at all latitudes.	It seeks the true meridian.	It can be used near the Earth's magnetic poles.	If an error exists, it is the same on all headings.	
3	1404	D	A great circle will intersect the equator at how many degrees of longitude apart?	0°	45°	90°	180°	
3	1405	B	After Venus passes the point of greatest elongation east in its orbit, the first position in which the elongation will be zero is _____.	superior conjunction	inferior conjunction	opposition	None of the above; the elongation will never be zero	
3	1406	D	What will act to dissipate fog?	Upwelling cold water	Advection of warm air over a colder surface	Rain that is warmer than air	Downslope motion of an air mass along a coast	
3	1408	D	An occluded front is caused by a(n) _____.	low pressure area	high pressure area	area of calm air	cold front overtaking a warm front	

3	1409	C	You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course 033°T, and bears 284°T, 43 miles from you. What is the time to intercept if you make 16 knots?	2h 16m	2h 22m	2h 32m	2h 42m	
3	1410	B	A white buoy marked with an orange rectangle indicates _____.	a fish net area	general information	an anchorage	mid-channel	
3	1411	C	The nominal range of a light may be accurately defined as the maximum distance at which a light may be seen _____.	under existing visibility conditions	under perfect visibility	with ten miles visibility	with fifteen miles visibility	
3	1412	D	The distance between the surface of the water and the tidal datum is the _____.	actual water depth	range of tide	charted depth	height of tide	
3	1413	D	The gyrocompass error resulting from your vessel's movement in OTHER than an east-west direction is called _____.	damping error	ballistic deflection	quadrantal error	speed error	
3	1414	D	You are planning a voyage from New York to Norway via the English Channel. Which publication contains information on the dangers to navigation in the English Channel?	Channel Pilot's Guide	World Port Index	Coast Pilot	Sailing Directions (Enroute)	
3	1415	C	Planetary aberration is due, in part, to _____.	refraction of light as it enters the Earth's atmosphere	rotation of the Earth on it's axis	the body's orbital motion during the time required for its light to reach Earth	a false horizon	
3	1416	B	Radiation fog _____.	always forms over water	is formed by a temperature inversion	is thinnest at the surface	dissipates during the evening	
3	1417	C	Determine the first time after 1200 EST (ZD +5) when the velocity of the current will be 0.5 knot on 18 November 1983, at Marcus Hook, PA.	1221	1226	1239	1312	
3	1418	A	Static on your AM radio may be _____.	an indication of nearby thunderstorm activity	an indication of "clearing" weather	of no meteorological significance	a sign of strong winds	
3	1419	A	The MOST important feature of the material used for making the binnacle of a standard magnetic compass is that it is _____.	nonmagnetic	weatherproof	corrosion resistant	capable of being permanently affixed to the vessel	
3	1420	D	the position labeled "E" was plotted because _____.	the vessel's position was fixed at 1145	a dead reckoning position is plotted within a half-hour of each course change	the position is a running fix	a dead reckoning position is plotted for each speed change	D051NG

3	1421	B	What is the approximate geographic visibility of an object with a height above the water of 70 feet, for an observer with a height of eye of 65 feet?	16.8 nm	19.0 nm	20.6 nm	22.4 nm	
3	1423	D	Quadrantal error in a gyrocompass has its GREATEST effect _____.	in high latitudes	near the equator	on north or south headings	on intercardinal headings	
3	1424	B	Except for N-S courses, and E-W courses on the equator, a great circle track between two points, when compared to a rhumb line track between the same two points, will _____.	always be nearer to the equator	always be nearer to the elevated pole	be nearer to the pole in the Northern Hemisphere and nearer to the equator in the Southern Hemisphere	be nearer to the pole or the equator depending on the latitudes of the arrival and departure positions	
3	1425	B	Which is an inferior planet?	Mars	Venus	Neptune	Pluto	
3	1426	A	Fog is most commonly associated with a(n) _____.	warm front at night	low pressure area	anticyclone	cold front in the spring	
3	1427	B	Determine the duration of the first PM slack water on 3 March 1983, east of the Statue of Liberty, when the current is less than 0.1 knot?	10 minutes	13 minutes	16 minutes	19 minutes	
3	1428	D	The speed of sound in water is approximately _____.	1.5 times its speed in air	2.5 times its speed in air	3.5 times its speed in air	4.5 times its speed in air	
3	1429	A	A celestial body will cross the prime vertical circle when the latitude is numerically _____.	greater than the declination and both are of the same name	less than the declination and both are of the same name	greater than the declination and both are of contrary name	less than the declination and both are of contrary name	
3	1430	B	The Light List indicates that a light has a nominal range of 14 miles and is 42 feet high (12.8 meters). If the visibility is 6 miles and your height of eye is 20 feet (6.1 meters), at what approximate distance will you sight the light?	20.1 miles	10.0 miles	7.6 miles	6.0 miles	
3	1431	C	A lighthouse is 120 feet (36.6 meters) high and the light has a nominal range of 18 miles. Your height of eye is 42 feet (12.8). If the visibility is 11 miles, approximately how far off the light will you be when the light becomes visible?	12.5 miles	16.0 miles	19.0 miles	23.5 miles	
3	1432	D	What benefit is a weather bulletin to a mariner?	It provides a legal reason to cancel a projected voyage.	It allows the mariner to make long term weather forecasts.	It is of little benefit since the weather changes frequently and rapidly.	It gives the mariner time to prepare for weather changes.	
3	1433	B	A system of reservoirs and connecting tubes in a gyro compass is called a _____.	spider element	mercury ballistic	gyrotron	rotor	

3	1434	C	What is NOT a characteristic of cardinal marks?	Yellow and black bands	White lights	Square or triangular topmarks	Directional orientation to a hazard	
3	1435	B	Inferior conjunction is possible for _____.	Mars	Venus	Saturn	Jupiter	
3	1436	D	Fog forms when the air _____.	is 50% water saturated	is 90% water saturated	temperature is greater than the dew point temperature	temperature is equal to, or below the dew point temperature	
3	1437	B	Determine the time after 0300 CST (ZD +6) when the velocity of the tidal current will be 0.5 knot on 16 April 1983, at Port Arthur Canal Entrance, TX.	0436	0507	0538	0554	
3	1438	C	In the Northern Hemisphere you are caught in the dangerous semicircle of a storm with plenty of sea room available. The best course of action is to bring the wind on the _____.	port quarter and make as much headway as possible	starboard quarter and make as much headway as possible	starboard bow and make as much headway as possible	port bow and make as much headway as possible	
3	1439	D	The symbols shown are used on radio facsimile weather charts. The symbol indicated at letter "G" represents a _____.	weather boundary	thunderstorm	wide spread sandstorm	severe, line squall	D042NG
3	1440	C	A mercurial barometer at sea is subject to rapid variations in height ("pumping") due to the pitch and roll of the vessel. To avoid this error, measurements of atmospheric pressure at sea are usually measured with a(n) _____.	syphon barometer	cistern barometer	aneroid barometer	fortin barometer	
3	1441	C	Your height of eye is 40 feet (12.2 meters). What is the approximate geographical distance at which Ambrose Light, NY, could be visible? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS".	18.3 nm	19.5 nm	21.0 nm	22.8 nm	
3	1442	A	A great circle track provides the maximum saving in distance on _____.	easterly courses in high latitudes	southerly courses in high latitudes	westerly courses in low latitudes	easterly courses in low latitudes that cross the equator	
3	1443	B	At the master gyrocompass, the compass card is attached to the _____.	spider element	sensitive element	link arm	pickup transformer	
3	1445	B	The planet Mars will have its greatest magnitude when at _____.	conjunction	opposition	east quadrature	west quadrature	
3	1446	B	When compared to air temperature, which factor is most useful in predicting fog?	Vapor pressure	Dew point	Barometric pressure	Absolute humidity	
3	1447	B	What will be the velocity of the tidal current 6 miles south of Shoal Point, NY, at 1850 DST (ZD +4) on 9 July 1983?	0.2 knot ebb	0.2 knot flood	1.2 knot ebb	1.4 knot flood	

3	1448	D	Spring tides occur when the _____.	Moon is in its first quarter or third quarter phase	Sun and Moon are in quadrature	Moon's declination is maximum and opposite to that of the Sun	Moon is new or full	
3	1449	C	The presence of stratus clouds and a dying wind will usually result in _____.	heavy rain	heavy snow	thick fog	clearing skies	
3	1450	C	The distance between the surface of the water and the tidal datum is the _____.	range of tide	charted depth	height of tide	actual water depth	
3	1452	B	When is the rhumb line distance the same as the great circle distance?	Course 090°T in high latitudes	Course 180°T when you cross the equator	Course 045°T in low latitudes	The rhumb line distance is always longer than the great circle distance.	
3	1453	B	Indications of the master gyrocompass are sent to remote repeaters by the _____.	follow-up system	transmitter	phantom element	azimuth motor	
3	1454	D	Atmospheric pressure may be measured with a(n) _____.	barograph	aneroid barometer	mercurial barometer	All of the above	
3	1455	A	Inferior conjunction is possible for _____.	Mercury	Saturn	Mars	Jupiter	
3	1456	D	The fog produced by warm moist air passing over a cold surface is called _____.	conduction fog	radiation fog	frontal fog	advection fog	
3	1457	C	What is the period of time from around 1008 DST (ZD +4) at Canapitsit Channel, MA, on 7 August 1983, in which the current does not exceed 0.4 knot?	0945 to 1031	0950 to 1026	0955 to 1021	1000 to 1024	
3	1458	D	When navigating coastwise and hurricane warnings are received, you should _____.	call the Coast Guard to request further information	call the NWS for further information	just begin to react and make plans	have battened down and be heading for the nearest port of refuge	
3	1459	C	In a tropical cyclone, in the Northern Hemisphere, a vessel hove to with the wind shifting counterclockwise is _____.	ahead of the storm center	in the dangerous semicircle	in the navigable semicircle	directly in the approach path of the storm	
3	1460	A	What is the major advantage of a rhumb line track?	The vessel can steam on a constant heading (disregarding wind, current, etc.).	The rhumb line is the shortest distance between the arrival and departure points.	It is easily plotted on a gnomonic chart for comparison with a great circle course.	It approximates a great circle on east-west courses in high latitudes.	
3	1461	A	The chart indicates the variation was 3°45'W in 1988, and the annual change is decreasing 6'. If you use the chart in 1991 how much variation should you apply?	3°27'W	3°27'E	4°03'W	4°03'E	

3	1463	A	If the gyrocompass error is east, what describes the error and the correction to be made to gyrocompass headings to obtain true headings?	The readings are too low (small numerically) and the amount of the error must be added to the compass to obtain true	The readings are too low and the amount of the error must be subtracted from the compass to obtain true	The readings are too high (large numerically) and the amount of the error must be added to the compass to obtain true	The readings are too high and the amount of the error must be subtracted from the compass to obtain true	
3	1464	D	A line of position derived from a loran reading is a section of a(n) _____.	straight line	arc	parabola	hyperbola	
3	1465	A	The planet Venus can be observed in the morning before sunrise if it is well to the _____.	west of and higher than the Sun	west of and lower than the Sun	east of and higher than the Sun	east of and lower than the Sun	
3	1466	D	Advection fog is most commonly caused by _____.	air being warmed above the dew point	saturation of cold air by rain	a rapid cooling of the air near the surface of the Earth at night	warm moist air being blown over a colder surface	
3	1467	D	Determine the time after 0730 EST (ZD +5) when the velocity of the current will be 2.1 knots on 26 March 1983, at Fort Pulaski, GA.	0802	0812	0821	0840	
3	1468	D	What is NOT an advantage of the rhumb line track over a great circle track?	Easily plotted on a Mercator chart	Negligible increase in distance on east-west courses near the equator	Does not require constant course changes	Plots as a straight line on Lambert conformal charts	
3	1469	C	The charted channel depth at Eastport, ME, is 28 feet. You are drawing 31.5 feet and wish 2 feet clearance under the keel. What is the earliest time after 1700 (ZD +4) on 6 September 1983 that you can enter the channel?	1825	1903	1915	2003	
3	1470	D	The Illustration shows the symbols used on radio facsimile weather charts. Which symbol indicates a hurricane?	M	I	L	K	D042NG
3	1471	A	A mountain peak charted at 700 feet breaks the horizon, and your height of eye is 12 feet. What is your approximate distance off (choose closest answer)?	34.7 nm	40.3 nm	55.3 nm	61.6 nm	
3	1473	A	Which statement about gyrocompass error is TRUE?	The amount of the error and the sign will generally be the same on all headings.	The sign (E or W) of the error will change with different headings of the ship.	Any error will remain constant unless the compass is stopped and restarted.	Any error shown by a gyro repeater will be the same as the error of the master compass.	

3	1474	A	You are on course 061°T. To check the longitude of your vessel you should observe a celestial body on which bearing?	090°	180°	241°	061°	
3	1475	A	Which type of cloud is the classic "thunderhead"?	Cumulonimbus	Stratus	Cirrus	Altostratus	
3	1476	C	When warm moist air blows over a colder surface and is cooled below its dew point, the result is _____.	radiation fog	ice fog	advection fog	frost smoke	
3	1477	C	The wind in the vicinity of Nantucket Shoals Light has been southerly at an average speed of 23 knots. The predicted set and drift of the rotary tidal current are 225° at 0.8 knot. What are the set and drift of the current you can expect at Nantucket Shoals Light?	025° at 1.8 knots	218° at 1.1 knots	235° at 0.5 knot	247° at 0.7 knot	
3	1479	B	A microbarograph is a precision instrument that provides a _____.	charted record of atmospheric temperature over time	charted record of atmospheric pressure over time	graphic record of combustible gases measured in an atmosphere	graphic record of vapor pressure from a flammable/combustible liquid	
3	1480	D	What is the definition of height of tide?	The vertical difference between the heights of low and high water	The vertical difference between a datum plane and the ocean bottom	The vertical distance from the surface of the water to the ocean floor	The vertical distance from the tidal datum to the level of the water at any time	
3	1481	A	What is the approximate geographic range of Fenwick Island Light, Delaware, if your height of eye is 42 feet (12.8 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS".	18.3 nm	15.4 nm	13.1 nm	10.3 nm	
3	1482	B	Which statement concerning current is TRUE?	Current can be determined by measuring the direction and distance between simultaneous EP and DR positions.	The drift of the current should be averaged out on a one hour basis.	After the current is determined, it should not be used for further plotting because it is an unknown variable.	The distance between a simultaneous DR position and fix is equal to the drift of the current.	
3	1483	A	The most accurate method of determining gyrocompass error while underway is by _____.	comparing the gyro azimuth of a celestial body with the computed azimuth of the body	comparing the gyro heading with the magnetic compass heading	determining from the chart the course made good between celestial fixes	It cannot be determined accurately at sea due to drift of unknown currents.	
3	1484	D	You should plot your dead reckoning position at _____.	every fix or running fix	every course change	every speed change	All of the above are correct.	

3	1485	A	The safest and most prudent procedure to follow while navigating in the vicinity of a tropical cyclone is to _____.	take positive steps to avoid it if possible	batten down and prepare to ride out the storm	continue to navigate farther from the coast	always navigate towards the coast by the most direct route	
3	1486	A	Which condition would most likely result in fog?	Warm moist air blowing over cold water	Airborne dust particles	Warm moist air blowing over warm water	Dew point falling below the air temperature	
3	1487	A	At the approaches to Savannah, GA, with the wind coming out of the west, the wind-driven current will be flowing approximately _____.	080°	100°	260°	280°	
3	1488	C	What defines a great circle?	A curved line drawn on a Mercator Chart	A course line that inscribes a loxodromic curve	The shortest distance between any two points on the earth	The smallest circle that can be drawn on the face of a sphere	
3	1489	B	Cumulonimbus clouds can produce _____.	dense fog and high humidity	gusty winds, thunder, rain or hail, and lightning	clear skies with the approach of a cold front	a rapid drop in barometric pressure followed by darkness	
3	1490	C	In the IALA Buoyage System, preferred-channel-to-port or preferred-channel-to-starboard buoys, when fitted with lights, will show a _____.	quick flashing light	long flashing light	composite group flashing (2 + 1) light	group flashing	
3	1491	D	You are on course 138°T. To check the latitude of your vessel you should observe a celestial body on which bearing?	138°	270°	318°	000°	
3	1492	B	You are planning a voyage from San Francisco to Japan. Which publication contains information on the ocean routes?	Coast Pilot	Sailing Directions (Planning Guide)	Sailing Directions (Enroute)	World Port Index	
3	1493	A	You are running parallel to the coast and estimate that the current is against you. In plotting a running fix using bearings from the same object on the coast, the greatest safety margin from inshore dangers will result if what speed is used to determine the fix?	Minimum speed estimate	Maximum speed estimate	Average speed estimate	A running fix should not be used under these conditions.	
3	1495	C	A great circle crosses the equator at 157°W. It will also cross the equator at what other longitude?	157°E	57°E	23°E	57°W	
3	1496	A	In a microbarograph, the pen should be checked and the inkwell filled _____.	each time the chart is changed	once per month	once per week	daily	
3	1497	B	When drawing a weather map and an isobar crosses a front, the isobar is drawn _____.	perpendicular to the front	kinked and pointing away from the low	kinked and pointing towards the low	kinked and pointing towards the high for a warm front only	

3	1498	B	A true bearing of a charted object, when plotted on a chart, will establish a _____.	fix	line of position	relative bearing	range	
3	1499	A	You are scanning the radar screen for a buoy fitted with racon. How should this signal appear on the PPI display?	Starting with a dash and extending radially outward from the target	As a broken line from center of PPI to the target	Starting with a dot and extending radially inward from the target	Starting with a dash and extending to the right of the target	
3	1500	D	In what order should the following sextant adjustments be made? I. Make telescope parallel to frame of sextant. II. Set horizon glass perpendicular to frame of sextant. III. Make index mirror and horizon glass parallel when index arm is set at zero. IV. Set index mirror perpendicular to frame of sextant.	I, II, III, IV	I, IV, II, III	III, II, IV, I	IV, II, III, I	
3	1501	B	What is the distance from the bottom of a wave trough to the top of a wave crest?	Wave length	Wave height	Wave breadth	Wave depth	
3	1502	A	You are running parallel to the coast and take a running fix using bearings of the same object. If you are making less speed than used for the running fix, in relation to the position indicated by the fix, you will be _____.	closer to the coast	farther from the coast	on the track line ahead of the fix	on the track line behind the fix	
3	1503	B	A radar range to a small, charted object such as a light will provide a line of position in which form?	Straight line	Arc	Parabola	Hyperbola	
3	1504	C	The time meridian used when computing the height of tide for Pensacola Bay, FL, is _____.	75°00'W	82°30'W	90°00'W	97°30'W	
3	1505	A	At 0000 you fix your position and change course to 090°T. At 0030 you again fix your position and it is 0.5 mile east of your DR. Which statement is TRUE?	The current is easterly.	The drift is 0.5 knot.	You should alter course to the right to regain the track line.	The current is perpendicular to your track line.	
3	1506	B	You are steaming southward along the west coast of the United States when you sight a buoy showing a flashing green light. How should you pass this buoy?	Leave it to your port.	Leave it to your starboard.	Pass it close aboard on either side.	Pass it on either side but well clear of it.	
3	1507	D	When you are steering on a pair of range lights and find the upper light is above the lower light you should _____.	come right	come left	wait until the lights are no longer in a vertical line	continue on the present course	
3	1508	B	A line of position is _____.	a line connecting two charted objects	a line on some point of which the vessel may be presumed to be located	the position of your vessel	not used in a running fix	

3	1509	C	Your facsimile prognostic chart indicates that you will cross the cold front of a low pressure system in about 24 hours. You should _____.	expect to see cirrus clouds followed by altostratus and nimbostratus clouds	alter course to remain in the navigable semicircle	prepare for gusty winds, thunderstorms, and a sudden wind shift	expect clear weather, with steady winds and pressure, until the front passes	
3	1510	B	During daylight savings time the meridian used for determining the time is located farther _____.	west	east	east in west longitude and west in east longitude	west in west longitude and east in east longitude	
3	1511	C	When within 300 miles of a named tropical storm or hurricane, it is standard practice to send weather reports every _____.	8 hours	6 hours	3 hours	hour	
3	1512	C	You are plotting a running fix. The LOP to be run forward is an arc from a radar range, what technique should be used?	The arc should be converted into a straight line using offsets and then run forward.	An arc should never be run forward.	The position of the object observed should be advanced to the new time and a new arc swung using the radius of the old arc.	The distance between LOP's should be added to the radar range and a new arc swung.	
3	1513	B	Scales on aneroid barometers are usually graduated in inches of mercury in the general range of _____.	26 to 29 inches	28 to 31 inches	30 to 33 inches	32 to 35 inches	
3	1514	B	The compass error of a magnetic compass that has no deviation is _____.	zero	equal to variation	eliminated by adjusting the compass	constant at any geographical location	
3	1515	D	An aneroid barometer on a boat should always be _____.	located in an air-conditioned area	mounted in the passenger compartment	protected by a collision bulkhead	permanently mounted	
3	1516	A	Which correction(s) must be applied to an aneroid barometer?	Instrument error and height error	Instrument error only	Height error only	Instrument error and latitude correction	
3	1517	B	When determining compass error by an azimuth of Polaris, you enter the Nautical Almanac with the _____.	GHA Aries	LHA Aries	LHA Polaris	GHA Polaris	
3	1518	C	Which publication requires infrequent corrections?	List of Lights	Coast Pilot	Sailing Directions (Planning Guide)	Radio Navigational Aids	
3	1520	A	The diurnal inequality of the tides is caused by _____.	the declination of the Moon	changing weather conditions	the Moon being at apogee	the Moon being at perigee	
3	1521	C	To avoid error you should read the scale of an aneroid barometer with your eye placed _____.	to the right of the pointer	to the left of the pointer	directly in front of the pointer	slightly above the meniscus	
3	1522	B	The pressure-sensitive element of an aneroid barometer is called a _____.	pressure bellows	sylphon cell	column of mercury	constant pressure capsule	

3	1523	B	Which is a characteristic of the weather preceding an approaching warm front?	Gusty winds	Steadily falling barometric pressure	Decreasing relative humidity	Clearing skies	
3	1524	A	A barometric pressure reading of 29.92 inches of mercury is equivalent to _____.	1013.25 millibars	29.92 feet of water	766 millimeters of mercury	76 centimeters of water	
3	1526	C	A single barometric pressure reading of 28.60 indicates _____.	rapidly improving weather	deteriorating weather	a severe low pressure system	fair weather and calm	
3	1527	B	Your vessel is on course 270°T, speed 10 knots. The apparent wind is from 10° off the port bow, speed 30 knots. From which direction is the true wind?	345°T	255°T	165°T	075°T	
3	1529	B	Widely spaced isobars on a weather map indicate _____.	high winds	gentle breezes	ice, snow or frozen rain	probability of tornados	
3	1530	B	In shallow water, waves that are too steep to be stable, causing the crests to move forward faster than the rest of the wave, are called _____.	rollers	breakers	white caps	surfers	
3	1532	A	The position labeled "E" was plotted because _____.	a dead reckoning position is plotted for each speed change	a dead reckoning position is plotted within a half-hour of each course change	the position is a running fix	the vessel's position was fixed at 1145	D051NG
3	1533	A	Lighted information markers show _____.	white lights	green lights	yellow lights	red lights	
3	1535	D	When observing a rapid rise in barometric pressure, you may expect _____.	clear weather with no wind, but the possibility of rain or snow within 24 hours	deteriorating weather with rain or snow	heavy rain or severe thundershowers	clearing weather, possibly accompanied by high winds	
3	1536	A	What will NOT induce errors into a Doppler sonar log?	Increased draft	Pitch	Roll	Change in trim	
3	1537	C	Which sextant in illustration D043NG reads 29°47.5'?	A	B	C	D	D043NG
3	1538	D	The winds of the "roaring forties" are strongest near _____.	40°N	50°N	40°S	50°S	
3	1539	C	You are steaming in the open ocean of the North Pacific between the Aleutian Chain and Hawaii. A warning broadcast indicates that an earthquake has occurred in the Aleutians and has generated a tsunami that is predicted to hit Hawaii. What action is necessary for the ship's safety?	Calculate the tsunami's ETA at your position and turn to a course that will head into the Tsunami.	Securely stow all loose gear, check deck lashings, and prepare for extreme rolls.	No special action as tsunamis are inconspicuous in the open ocean	Prepare for sudden, high-velocity wind gusts from rapidly changing directions.	

3	1540	C	You are sailing south on the Intracoastal Waterway (ICW) when you sight a green can buoy with a yellow square painted on it. Which of the following is TRUE?	You should pass the buoy close aboard on either side.	The buoy marks the end of the ICW in that area.	You should leave the buoy to port.	The yellow square is retroreflective material used to assist in sighting the buoy at night.	
3	1542	C	To find a magnetic course from a true course you must apply _____.	magnetic anomalies (local disturbances)	deviation	variation	deviation and variation	
3	1543	A	The distance between the surface of the water and the tidal datum is the _____.	height of tide	charted depth	actual water depth	range of tide	
3	1544	A	The height of a tide can be increased by _____.	a storm surge	a high pressure area	the jet stream	a cold front	
3	1545	C	The change in the length of day becomes greater as latitude increases because of the _____.	inclination of the diurnal circle to the equator	decreasing distance between the terrestrial meridians	increased obliquity of the celestial sphere	changing distance between the earth and the sun	
3	1546	B	You are sailing south on the Intracoastal Waterway (ICW) when you sight a red nun buoy with a yellow triangle painted on it. Which statement is TRUE?	Geometric symbols such as squares and triangles replace letters and numbers on ICW aids to navigation.	The ICW and another waterway coincide in this geographical area.	The yellow triangle identifies a sharp turn (over 60°) in the channel.	This is an information or regulatory buoy that also has lateral significance.	
3	1547	A	Which light combination does NOT indicate a navigational channel passing under a fixed bridge?	Red lights on the LDB and green lights on the RDB	Three white lights in a vertical line	Two green lights in a range under the span	A fixed red light on each pier at the channel edge	
3	1548	A	The Illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "K" represents a _____.	hurricane	thunderstorm	convergence zone	convergence line	D042NG
3	1550	A	Cirrus clouds are indicated by which number?	1	4	5	7	D039NG
3	1551	A	In order to get the maximum benefit from the Gulf Stream, on a voyage between Houston and Philadelphia, you should navigate _____.	about 75 miles east of Ormond Beach, FL	close inshore between Jupiter Inlet and Fowey Rocks, FL	along the 50-fathom curve while off the east coast of Florida	about 10 miles east of Cape Canaveral, FL	
3	1552	B	Which sextant in illustration D043NG reads 30°42.5'?	A	B	C	D	D043NG
3	1554	C	A slow rise in the barometric pressure forecasts _____.	rainy weather for the next 48 hours	high seas	improving weather conditions	deteriorating weather conditions	
3	1555	D	Under the U.S. Aids to Navigation System, a yellow buoy is a _____.	safe water buoy	junction buoy	cardinal mark	special purpose mark	
3	1556	C	The vertical distance from the tidal datum to the level of the water is the _____.	range of tide	charted depth	height of tide	actual water depth	

3	1557	B	A Doppler log in the volume reverberation mode indicates _____.	speed being made good	speed through the water	the set of the current	the depth of the water	
3	1558	C	As a high pressure system approaches, the barometer reading _____.	stays the same	falls	rises	falls rapidly	
3	1559	A	You are underway in the North Sea on course 216°T when you sight a buoy bearing 021° relative. Under the IALA Buoyage System, you are in the best navigable water if the buoy _____.	has a light characteristic of Q(6) + L Fl 15s	is horizontally banded yellow, black, yellow	has a double cone topmark with both points up	has a continuous very quick light	
3	1560	A	Under the IALA-A and B Buoyage Systems, a buoy with alternating red and white vertical stripes indicates _____.	that there is navigable water all around	an isolated danger exists	that the preferred channel is to port	that the preferred channel is to starboard	
3	1561	D	You are sailing south on the Intracoastal Waterway (ICW) when you sight a red nun buoy with a yellow square painted on it. Which statement is TRUE?	The buoy is off station and should be ignored as a navigational mark.	The waterway in that area has shoaled and the available depth of water is less than the project depth.	ICW traffic should not proceed beyond the buoy unless the crossing waterway is clear of all traffic.	You should leave the buoy to port.	
3	1563	D	Neap tides occur only _____.	at a new or full Moon	when the Sun, Moon, and Earth are in line	at approximately 28-day intervals	when the Moon is at quadrature	
3	1564	A	What is a characteristic of cardinal marks?	Light rhythms indicating directional orientation	Vertical stripes	Square or triangular topmarks	Number-letter combinations for identification	
3	1565	B	Determine the approximate geographic visibility of an object, with a height above the water of 85 feet (25.9 meters), for an observer with a height of eye of 60 feet (18.3 meters).	18.4 nm	19.9 nm	20.8 nm	21.5 nm	
3	1566	A	The illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates thunderstorms?	I	K	L	M	D042NG
3	1567	C	Buoys and day beacons exhibiting a yellow triangle or square painted on them are used _____.	in minor harbors where the controlling depth is 10 feet (3 meters) or less	on isolated stretches of the ICW to mark undredged areas	where the ICW and other waterways coincide	at particularly hazardous turns of the channel	
3	1568	D	You are approaching a vertical lift bridge. You know the span is fully open when _____.	three white lights in a vertical line are lit	a red light starts to flash at about 60 times a minute	a yellow light is illuminated on the bridge pier	there is a range of green lights under the lift span	
3	1569	D	Three or four feet of the total height of a storm surge in a hurricane can be attributed to _____.	an increase in temperature	an increase in the wave period	the wind velocity	the decrease in atmospheric pressure	

3	1570	C	The navigational triangle uses parts of two systems of coordinates, one of which is the horizon system and the other is the _____.	terrestrial system	astronautical system	celestial equator system	ecliptic system	
3	1571	A	Which sextant in illustration D043NG reads 29°42.7'?	A	B	C	D	D043NG
3	1572	B	Generally speaking, in the Northern Hemisphere, when winds are blowing from between SE and SW the barometric reading _____.	makes no change at all	is somewhat lower than it would be for winds from a northern quadrant	is uncertain and may fluctuate by increasing and decreasing	is somewhat higher than it would be for winds from the northern quadrant	
3	1574	C	Information about currents around Pacific Coast ports of the U.S. is found in the _____.	Nautical Almanac	Tide Tables	Tidal Current Tables	Ocean Current Tables	
3	1576	A	You are entering an east coast port and see a buoy with a yellow triangle painted on it. This indicates _____.	you are in the vicinity of the ICW	the buoy is a special mark	the buoy is off station	the buoy designates a sharp turn in the channel	
3	1577	D	Yesterday your chronometer read 11h 59m 59s at 1200 GMT time tick. Today the chronometer reads 12h 00m 01s at the 1200 GMT tick. What is the chronometer rate?	-1s	+1s	-2s	+2s	
3	1578	D	The LMT of sunrise on the standard meridian is 0552. Your longitude is 99°15'E. What is your ZT of sunrise?	0512	0529	0552	0615	
3	1579	B	You get underway from the oil terminal at Marcus Hook, PA, at 0815 ZT (ZD +5) on 20 February 1983, enroute to sea. You will be turning for 11 knots. What is the approximate current when you are abreast Reedy Island?	Slack	2.0 knots ebbing	1.5 knots flooding	0.5 knot flooding	
3	1581	B	Shown are the symbols used on radio facsimile weather charts. The symbol indicated at letter "I" represents _____.	rain showers	thunderstorms	snow storms	sand storms	D042NG
3	1582	D	Sextant C in illustration D043NG reads _____.	30°45.9'	29°56.0'	29°52.0'	29°47.5'	D043NG
3	1583	B	The angle measured from the observer's meridian, clockwise or counterclockwise up to 180°, to the vertical circle of the body is the _____.	local hour angle	azimuth angle	meridian angle	observer's longitude	
3	1584	D	A decrease in barometric pressure is associated with all of the following except _____.	rising warm air	proximity to a low pressure area	inward spiraling circulation	clear dry weather	

3	1585	A	The sidereal day begins when the _____.	first point of Aries is over the upper branch of the reference meridian	Sun is over the lower branch of the reference meridian	Sun is over the upper branch of the reference meridian	first point of Aries is over the lower branch of the reference meridian	
3	1586	C	A green buoy has a yellow triangle on it. This is a(n) _____.	information or regulatory buoy that has lateral significance	buoy that is off-station and is marked to warn mariners of its wrong position	dual purpose marking used where the ICW and other waterways coincide	buoy that was set in error and will be replaced with a red nun buoy	
3	1587	B	In general, the most effective period for observing stars and planets occurs during the darker limit of _____.	sunset	civil twilight	nautical twilight	astronomical twilight	
3	1589	B	You are enroute to Savannah, GA, from Recife, Brazil. There is a strong N'ly wind blowing. As you cross the axis of the Gulf Stream you would expect to encounter _____.	smoother seas and warmer water	steeper waves, closer together	long swells	cirrus clouds	
3	1590	B	Civil twilight starts at 1812 zone time on 26 August 1981, Your DR position at that time is LAT 21°06'S, LONG 14°56' W. Which statement concerning the planets available for evening sights is TRUE?	Mars will be near the prime vertical in the eastern sky.	Venus may be identified from Saturn and Jupiter because it is the brightest.	Sights of Venus, Jupiter, and Saturn will yield a good three line fix.	A sight of either Jupiter, Saturn, or Venus will give a latitude line.	
3	1592	D	A white buoy marked with an orange rectangle indicates _____.	an anchorage	a fish net area	mid-channel	general information	
3	1593	B	Apparent altitude is sextant altitude corrected for _____.	parallax and personal error	inaccuracies in the reading and reference level	visibility and magnitude	All of the above are correct	
3	1594	C	The Illustration shows the symbols used on radio facsimile weather charts. The symbol indicated at letter "P" represents _____.	snow	hail	freezing rain	sleet	D042NG
3	1595	D	The Light List indicates that a light has a nominal range of 8 miles and is 48 feet(14.6 meters) high. If the visibility is 6 miles and your height of eye is 35 feet(10.7 meters), at what approximate distance will you sight the light?	15.0 nm	12.4 nm	8.0 nm	5.9 nm	
3	1596	A	You are sailing south on the Intracoastal Waterway (ICW) when you sight a red nun buoy with a yellow square painted on it. Which of the following is TRUE?	You should leave the buoy on your port hand.	This buoy marks the end of the ICW in that geographic area.	The yellow is retroreflective material used to assist in sighting the buoy at night.	The yellow square is in error and it should be a yellow triangle.	

3	1597	B	The dense black cumulonimbus clouds surrounding the eye of a hurricane are called _____.	spiral rainbands	cloud walls	funnel clouds	cyclonic spirals	
3	1598	C	A slow, gradual fall of the barometer indicates approaching _____.	gale force winds within 12 hours	blizzard conditions	deteriorating or unsettled weather	heavy, wind driven rain	
3	1599	B	The time interval between successive wave crests is called the _____.	trough	period	frequency	epoch	
3	1600	A	Zenith distance is equal to _____.	90° - Ho	90° - d	Ho° + d	90° - z	
3	1601	B	Sextant B in illustration D043NG reads _____.	30°51.0'	30°42.5'	30°47.5'	31°00.0'	D043NG
3	1602	C	Most modern Loran-C receivers automatically detect secondary station blink which _____.	indicates the station is transmitting normally	automatically shuts down the receiver	triggers alarm indicators to warn the operator	causes the receiver to shift automatically to another Loran chain	
3	1603	B	A position that is obtained by using two or more intersecting lines of position, taken at nearly the same time, is a(n) _____.	estimated position	fix	running fix	dead-reckoning position	
3	1604	D	The Illustration shows the symbols used on radio facsimile weather charts. Which of these symbols indicates freezing rain?	M	N	O	P	D042NG
3	1606	B	Aids to navigation marking the intracoastal waterway can be identified by _____.	the letters ICW after the aid's number or letter	yellow stripes, squares, or triangles marked on them	white retroreflective material	the light characteristic and color for lighted aids	
3	1607	D	When your barometer reading changes from 30.25 to 30.05 in a 12-hour period it indicates _____.	rapidly changing weather	improving weather	high winds within the next six hours	little or no immediate change	
3	1608	B	When using a buoy as an aid to navigation which of the following should be considered?	If the light is flashing the buoy should be considered to be in the charted location.	The buoy may not be in the charted position.	The buoy should be considered to be in the charted position if it has been freshly painted.	The buoy should be considered to always be in the charted position.	
3	1609	C	A rapid rise or fall of the barometer indicates _____.	heavy rain within six hours	a decrease in wind velocity	a change in the present weather conditions	that fog will soon set in	
3	1610	A	When the navigational channel passes under a fixed bridge, the edges of the channel are marked on the bridge with what lights?	Red lights	Three white lights in a vertical line	Red lights on the LDB and green lights on the RDB	Yellow lights	

3	1611	D	What indicates a dual purpose buoy?	Red buoy with a horizontal yellow band	Red and white vertically-striped buoy with a vertical yellow stripe	Red and white vertically-striped buoy with a red spherical topmark	Green buoy with a yellow square	
3	1612	C	The strongest winds and heaviest rains in a hurricane are found in the _____.	outer bands	eye	cloud walls	spiral rainbands	
3	1613	B	Where would you find information concerning the duration of slack water?	Tide Tables	Tidal Current Tables	American Practical Navigator	Sailing Directions	
3	1614	B	Hot air can hold _____.	less moisture than cold air	more moisture than cold air	the same amount of moisture as cold air	moisture independent of air temperature	
3	1615	C	The Illustration shows the symbols used on radio facsimile weather charts. Which symbol indicates snow?	G	H	M	N	D042NG
3	1616	D	Which picture in illustration D034NG shows a Morse (A) light?	A	B	C	D	D034NG
3	1617	A	The inner cloud bands of a hurricane, when viewed from a distance, form a mass of dense, black cumulonimbus clouds called the _____.	bar of the storm	eye of the storm	funnel	front	
3	1618	A	The Light List indicates that a light has a nominal range of 14 miles and is 26 feet high. If the visibility is 4 miles and your height of eye is 20 feet, at what approximate distance will you sight the light?	7.5 miles	9.6 miles	11.2 miles	14.0 miles	
3	1619	A	Sextant A reads _____.	29°42.7'	29°45.7'	29°51.8'	30°47.2'	DO43NG
3	1620	D	You are at anchor in the anchorage at the entrance to Delaware Bay. If you weigh anchor at 1445 DST (ZD +4) on 24 July 1983 and proceed northbound enroute to Philadelphia at a speed of 10 knots, you will have _____.	a flood current the entire trip	a flood current from Ship John Shoal Lt. to Philadelphia	an ebb current north of New Castle, DE	a weak flood between Reedy Island and Edgemoor	
3	1623	D	Which of the following statements is FALSE?	An anemometer measures wind speed.	A barometer measures atmospheric pressure.	A thermometer measures temperature.	A psychrometer measures wind pressure.	
3	1624	C	A psychrometer has two thermometers that provide dry bulb and wet bulb temperatures. By comparing these two temperature readings with a set of tables you can determine the _____.	atmospheric pressure	wind speed	relative humidity and dew point	wind chill factor	

3	1625	C	A sling psychrometer is used to measure _____.	seawater temperature	engine temperature	dry bulb and wet bulb temperatures	barometric pressure	
3	1626	B	Which instrument is used to measure the relative humidity of the air?	A hydrometer	A hygrometer	A spectrometer	A barograph	
3	1627	C	An instrument that maintains a continuous record of humidity changes is called a _____.	thermometer	barometer	hygrograph	thermograph	
3	1628	B	As the temperature of the air reaches the dew point, _____.	rain must develop	fog may form	it begins to snow	water freezes	
3	1629	D	Air temperature varies with _____.	the altitude above sea level	the season of the year	the latitude or distance from the equator	All of the above	
3	1631	B	Which picture shows an occulting light?	A	B	C	D	D034NG
3	1632	C	Lighted white and orange buoys must show which color light?	Orange	Red	White	Alternating yellow and white	
3	1633	A	To find a magnetic compass course from a true course you must apply _____.	deviation and variation	deviation	variation	magnetic anomalies (local disturbances)	
3	1634	A	A lighted buoy to be left to starboard, when entering a U.S. port from seaward, shall have a _____.	red light	white light	green light	light characteristic of Morse (A)	
3	1635	D	An isotherm is _____.	a line on a weather map connecting equal points of both temperature and pressure	an instrument that measures the climatological effects of temperature	a line connecting points of equal barometric pressure on a weather map	a line connecting points of equal temperature on a weather map	
3	1636	B	A type of precipitation that occurs only in thunderstorms with strong convection currents that convey raindrops above and below the freezing level is known as _____.	sleet	hail	freezing rain	rime	
3	1637	B	Which of the following is NOT a form of precipitation?	rain	frost	sleet	snow	
3	1638	A	Clouds form _____.	as a mass of warm, humid air rises into the atmosphere and cools, condensing moisture into small droplets	as winds blow across bodies of water, the sun causes the moisture to be absorbed and move upward forming clouds	dry air compresses moisture from the atmosphere into clouds	when the relative humidity of the atmosphere is low	
3	1639	C	Sextant D reads _____.	30°47.5'	29°47.5'	29°42.5'	29°41.6'	D043NG

3	1640	D	Clouds with the prefix "nimbo" in their name _____.	are sheet or layer clouds	have undergone great vertical development	are middle or high altitude clouds	are rain clouds	
3	1641	D	The low, dark, sheet-like cloud which is associated with continuous precipitation for many hours is a _____.	cirrus cloud	cumulus cloud	cumulonimbus cloud	nimbostratus cloud	
3	1642	D	Which type of cloud formation should be of immediate concern to small craft operators?	cirrus	altostratus	nimbostratus	cumulonimbus	
3	1643	C	Cumulus clouds that have undergone vertical development and have become cumulonimbus in form, indicate _____.	clearing weather	that a warm front has passed	probable thunderstorm activity	an approaching hurricane or typhoon	
3	1644	D	Which scale is used to estimate wind speed by observing sea conditions _____.	Metric scale	Wind scale	Coriolis scale	Beaufort scale	
3	1646	C	Which picture in illustration D034NG shows a flashing light?	A	B	C	D	D034NG
3	1647	A	Cumulonimbus clouds are formed by _____.	vertical air movements	heavy rainstorms	horizontal air movements	any movement of moist air	
3	1648	D	A sign of thunderstorm development is a cumulus cloud _____.	darkening, growing in size and forming an anvil top	that shows extensive vertical development	creating cold downdrafts that are felt on the ground	All of the above	
3	1649	B	If you count 20 seconds between seeing lightning and hearing the thunder, how far is the storm away from you?	2 miles	4 miles	6 miles	8 miles	
3	1651	C	From which type of cloud can a tornado or waterspout develop?	Nimbostratus	Altostratus	Cumulonimbus	Cirrus	
3	1652	B	Small, visible mound-like protuberances on the bottom of cumulonimbus clouds, that are potential breeding grounds for waterspouts and tornadoes, are called _____.	thunderheads	mamma	rime	ice prisms	
3	1653	D	In a weather report, the term "visibility" expresses _____.	how far you can see with the "naked eye"	how far you can see with a telescope or binoculars	how well you can identify an object at night	the distance in miles at which prominent objects are identifiable	
3	1654	A	Which weather element cannot be measured accurately while on board a moving vessel?	Visibility	Temperature	Wind direction	Atmospheric pressure	
3	1655	B	Yesterday your chronometer read 11h 59m 59s at the 1200 GMT time tick. Today the chronometer reads 11h 59m 57s at the 1200 time tick. What is the chronometer rate?	+2s	-2s	-3s	+3s	

3	1656	C	Which instrument is most useful in forecasting fog?	A barometer	An anemometer	A sling psychrometer	A pyrometer	
3	1657	D	Fog is formed when _____.	the moisture in the air is condensed into small droplets	air is cooled to its dew point	the base of a cloud is on the ground	All of the above	
3	1658	C	Fog forms when the air temperature is at or below _____.	32° F	the wet bulb temperature	the dew point	the dry bulb temperature	
3	1659	A	The type of fog that occurs on clear nights with very light breezes and forms when the earth cools rapidly by radiation is known as _____.	radiation fog	frontal fog	convection fog	advection fog	
3	1660	D	Which of the following is TRUE of advection fog?	It commonly occurs on coastal waters during cold seasons.	It moves in a bank or dense cloud.	It is caused by warmer air moving to a cooler location.	All of the above	
3	1661	B	Advection fog may be formed by warm moist air passing over a _____.	warmer sea surface	cooler sea surface	dry coastal plain	polar land mass	
3	1662	D	Fog generally clears when the _____.	wind speed increases	wind direction changes	temperature increases	All of the above	
3	1663	C	What is the primary source of the earth's weather?	The oceans	The moon	The sun	The solar system	
3	1664	C	Ascending and descending air masses with different temperatures is part of an important heat transmitting process in our atmosphere called _____.	conduction	radiation	convection	barometric inversion	
3	1665	D	Air circulation is caused or affected by _____.	the rotation of the earth on its axis	convection currents caused by differences in radiant heating between equatorial and polar regions	mountain ranges	All of the above	
3	1666	B	The process by which the temperature and/or moisture characteristics of an air mass changes is called _____.	sublimation or condensation	modification	consolidation	association	
3	1667	D	Air masses near the earth's surface _____.	move from areas of high pressure to areas of low pressure	are deflected by the earth's rotation in both hemispheres	are deflected by the "Coriolis effect"	All of the above	
3	1671	A	Cirrus clouds are composed primarily of _____.	ice crystals	water droplets	snow crystals	nitrogen	

3	1672	B	Data relating to the direction and velocity of rotary tidal currents can be found in the _____.	Mariner's Guide	Tidal Current Tables	Nautical Almanac	Tide Tables	
3	1673	B	Information about currents on the Pacific Coast of the U. S. is found in the _____.	Nautical Almanac	Tidal Current Tables	Ocean Current Tables	Tide Tables	
3	1675	B	You are entering port and have been instructed to anchor, as your berth is not yet available. You are on a SW'ly heading, preparing to drop anchor, when you observe the range lights as shown on your starboard beam. You should _____.	NOT drop the anchor until the lights are in line	ensure your ship will NOT block the channel or obstruct the range while at anchor	drop the anchor immediately as the range lights mark an area free of obstructions	drop the anchor immediately as a change in the position of the range lights will always be an indication of dragging anchor	D047NG
3	1676	B	Lighted information markers show _____.	green lights	white lights	yellow lights	red lights	
3	1677	B	The position labeled "E" was plotted because _____.	a dead reckoning position is plotted within a half-hour of each course change	a dead reckoning position is plotted for each speed change	the position is a running fix 1125	the vessel's position was fixed at 1145	D051NG
3	1678	D	Which information is NOT provided in broadcasts by the National Institute of Standards and Technology?	Storm Warnings	Time Announcements	GPS Information	NAVAREA Warnings	
3	1680	B	A weather front exists when _____.	air masses of the same temperature meet	air masses of different temperatures meet	many clouds create a differential in air density	two lows are separated by a ridge of higher pressure	
3	1681	D	You can expect frontal activity when two air masses collide and _____.	their barometric pressures and temperatures are the same	there are differences in how they track along the jet stream	there are no significant differences between their temperatures and moisture content	there are significant differences between the temperature of each air mass	
3	1682	D	Which of the listed properties does warm air possess?	It rises above cooler air and cools as it rises.	Atmospheric pressure drops as warm air rises.	Moisture in warm air condenses as the air is cooled.	All of the above	
3	1683	A	As it approaches, a typical warm front will bring _____.	rising temperatures and falling barometric pressure	falling temperature and pressure	falling temperatures and rising pressure	rising barometric pressure and temperatures	
3	1684	A	Which type of frontal passage is associated with a relatively narrow band of precipitation?	A cold front	A warm front	A stationary front	None of the above	
3	1685	B	Squall lines with an almost unbroken line of threatening dark clouds and sharp changes in wind direction, generally precede a(n) _____.	slow-moving warm front	fast-moving cold front	stationary front	occluded front	

3	1686	C	Which of the following statements concerning frontal movements is TRUE?	The temperature rises after a cold front passes.	The barometric pressure rises when a warm front passes.	A cold front generally passes faster than a warm front.	A warm front usually has more violent weather associated with it than a cold front.	
3	1687	A	Which statement is TRUE when comparing cold and warm fronts?	Cold fronts are more violent and of shorter duration.	Cold fronts are milder and last longer.	They are very similar with the exception of wind direction.	Warm fronts are more violent and of longer duration.	
3	1688	B	Which type of front forms when a cold front overtakes and forces a warm front upwards?	A cold front	An occluded front	A warm front	A stationary front	
3	1689	B	The "horse latitudes" are regions of _____.	brisk prevailing winds	light airs and calms	abundant blue sea grass vegetation	None of the above	
3	1690	B	In regions near the poles, the winds are generally described as _____.	westerlies	easterlies	northerlies	southerlies	
3	1741	C	The left half of the storm is called the navigable semicircle because _____.	the wind speed is decreased by the storm's forward motion	the wind tends to blow vessels away from the storms track	Both A and B	Neither A nor B	
3	1742	A	In the Northern hemisphere which semicircle of a hurricane is the navigable semicircle?	Left	Right	Front	Back	
3	1743	A	In the Northern Hemisphere, if your vessel is in a hurricane's navigable semicircle it should be positioned with the wind on the _____.	starboard quarter, hold course and make as much speed as possible	port bow, hold course and make as much speed as possible until the hurricane has passed	port quarter, maintain course and make as much speed as possible	starboard bow and heave to until the hurricane has passed	
3	1744	A	Which condition suggests that your present position lies in the navigable semicircle of a tropical storm?	A backing wind	A veering wind	Sustained gale force winds	A strong wind that maintains a constant speed and direction	
3	1745	D	When your vessel is on the storm track but behind the storm's center the _____.	wind direction remains steady	wind speed decreases	barometer rises	All of the above	
3	1746	B	Swells that have outrun the storm are produced in the _____.	left front quadrant	right front quadrant	rear	directly ahead on the storms projected track	
3	1749	B	If the current and wind are in opposite directions, the sea surface represents _____.	a greatly reduced wind speed	a higher wind speed than what really exists	a lower wind speed than what really exists	more turbulent winds	
3	1750	D	Clearance gauges at bridges indicate _____.	the height of the tide	depth of water under the bridge	charted vertical clearance at mean low water	distance from the water to low steel of the bridge	

3	1751	C	A tsunami is caused by a(n) _____.	tidal wave	storm surge caused by a hurricane or tropical storm	earthquake on the ocean's floor	tornado	
3	1752	C	What is the major limitation in using the Sight Reduction Tables for Air Navigation Volume I (Pub. No. 249) for star sights?	More accuracy is needed for celestial observations on board ship than what is tabulated.	Sights must be made at even time increments to benefit from the tables.	Only certain stars are included and sights must be limited to those stars.	Only first magnitude stars are tabulated.	
3	1753	A	On a weather map, a large letter "H" means _____.	a high pressure area with cool, dry air, and fair weather	a high pressure area with warm, moist air, and inclement weather	horse latitudes, with rough seas and strong winds	a heavy squall line near the "H"	
3	1755	D	Which weather system produces strong cold winds called "Northers" during the winter months in the Gulf of Mexico?	An anticyclone	A high pressure system	A cyclone	Both A and B	
3	1756	B	Where would you expect to find climatological and meteorological tables for the Gulf Coast area?	In the publication entitled Radio Aids to Navigation	In the back of Coast Pilot #5	In any Coast Pilot volume	Only at the National Weather Service office	
3	1757	D	Where would you obtain data on currents for areas of the world not covered by the U.S. National Ocean Service?	In the Coast Pilot	In the Nautical Almanac	In the List of Lights	In the Sailing Directions	
3	1758	D	The climate of the eastern Gulf coast _____.	is humid and subtropical throughout the year	has an east coast marine type of climate	has a Mediterranean type of climate	varies from warm to subtropical	
3	1759	B	Which magnetic compass corrector(s) can be set while the vessel is on a heading of magnetic north or magnetic south?	Quadrantal spheres	Heeling magnets	Flinders bar	Fore-and-aft magnets	
3	1760	D	A Doppler log in the bottom return mode indicates the _____.	velocity of the current	bottom characteristics	depth of the water	speed over the ground	
3	1761	C	Chart legends which indicate a conspicuous landmark are printed in _____.	italics	underlined letters	capital letters	boldfaced print	
3	1762	B	In high latitudes, celestial observations can be made over a horizon covered with pack ice by bringing the sun tangent to the ice and _____.	adding 30° of arc to the sight	using a dip correction based on the height of eye above the ice	doubling the semidiameter correction	using a dip correction from table 22 in Bowditch Vol. II	
3	1763	A	Weather patterns in the Gulf Coast area of the United States are _____.	those of a transition zone between tropical and a temperate area	those of a tropical region	extremely hot in summer	tropical over Florida and subtropical over the rest of the Gulf Coast area	

3	1764	B	What natural feature is responsible for the rather even climate found on the Florida peninsula throughout the year?	Strong masses of continental air	The Gulf Stream	The Bermuda high	The cool waters of the Sargasso sea	
3	1765	A	Which meteorological feature controls the climate of the Gulf and the Gulf Coast area during late spring and summer?	The Bermuda High	The doldrums	The horse latitudes	Tropical cyclones	
3	1766	B	You are approaching a lock and see a flashing amber light located on the lock wall. You should _____.	stand clear of the lock entrance	approach the lock under full control	enter the lock as quickly as possible	hang off your tow on the lock wall	
3	1767	A	Which statement describes the prevailing wind direction in mid-winter in the Gulf Coast area?	30% to 40% of mid-winter winds are from a northern quadrant.	40% to 50% of mid-winter winds are from a southern quadrant.	the winds are variable in speed, but strongest in March.	None of the above	
3	1768	C	A flashing red light displayed at a single lock means that the lock _____.	is ready to use but vessels must stand clear	is ready to use and vessels may approach	cannot be made ready immediately and vessels shall stand clear	cannot be made ready immediately but vessels may approach	
3	1769	A	Under the numbering system used by NGA (NIMA), a three digit number may be used for _____.	a small scale chart depicting a major portion of an ocean basin or a position plotting sheet	non-navigational materials such as radar plotting sheets	products issued periodically such as the Notice to Mariners	large scale charts of areas that are infrequently used for navigation such as the headwaters of rivers	
3	1770	B	A Doppler speed log indicates speed over ground _____.	at all times	in the bottom return mode	in the volume reverberation mode	only when there is no current	
3	1771	C	Which type of precipitation is a product of the violent convection found in thunderstorms?	Snow	Freezing Rain	Hail	Sleet	
3	1772	A	The GP of a body for a high altitude sight is determined from the declination and the _____.	Greenwich hour angle	azimuth	zenith distance	right ascension	
3	1773	D	A "Norther" in the Gulf of Mexico is _____.	a wind shift to the north accompanied by a drop in temperature	a forcible northerly wind of at least 20 knots	a strong northerly wind that generally occurs between November and March	All of the above	
3	1774	C	Restricted areas at locks and dams are indicated by _____.	flashing red lights upstream and fixed red lights downstream	yellow unlighted buoys	signs and/or flashing red lights	red daymarks upstream and green daymarks downstream	

3	1776	C	A vessel operating on the Great Lakes, and whose position is southeast of an eastward-moving storm center, would NOT experience _____.	a falling barometer	lowering clouds and drizzle	a northeast wind	rain or snow	
3	1777	A	If the current and wind are in the same direction, the sea surface represents a wind speed _____.	lower than actually exists	higher than actually exists	that actually exists	that has no proportional relationship	
3	1779	B	The Light List indicates that a light has a nominal range of 14 miles and is 26 feet high. If the visibility is 14 miles and your height of eye is 20 feet, at which approximate distance will you sight the light?	7.5 miles	11.2 miles	14.0 miles	18.1 miles	
3	1780	C	While in port, you can follow the approach of a dangerous cyclonic storm by inspecting _____.	the Coast Pilot or Sailing Directions	the National Weather Service Observing Handbook No.1, Marine Surface Observations	a newspaper	the sky overhead	
3	1781	D	While in port, you can follow the approach of a dangerous cyclonic storm by inspecting _____.	the sky overhead	the National Weather Service Observing Handbook No.1, Marine Surface Observations	the Coast Pilot or Sailing Directions	a weather map	
3	1782	C	You are on course 027°T and take a relative bearing to a lighthouse of 220°. What is the true bearing to the lighthouse?	113°	193°	247°	279°	
3	1783	B	You can follow the approach of a dangerous cyclonic storm by inspecting _____.	the National Weather Service Observing Handbook No.1, Marine Surface Observations	a weather fax	the Coast Pilot or Sailing Directions	the sky overhead	
3	1784	C	If your vessel were proceeding down river (descending), a green square marker with a green reflector border on the right bank would be a _____.	mile board	dredging mark	passing daymark	crossing daymark	
3	1785	B	Which factor(s) is/are used to develop the charted information of a lighthouse?	Height of the light and the observer	Height and brightness of the light	Brightness of the light and height of the observer	Height of the light only	

3	1786	C	You are downbound approaching a lock and see 3 green lights in a vertical line. This indicates _____.	that the lock chamber is open and ready to receive your tow	that you should hold up until the signal changes to 2 green lights	the upstream end of the river wall	the upstream end of the land wall	
3	1787	A	What indicates that a tropical cyclone may be within 500 to 1,000 miles of your position?	A pumping of the barometer up and down a few millibars	A sudden wind shift from southwest to northwest followed by steadily increasing winds	The normal swell pattern becoming confused, with the length of the swell increasing	An overcast sky with steadily increasing rain from nimbostratus clouds	
3	1788	C	You can follow the approach of a dangerous cyclonic storm by inspecting _____.	the Coast Pilot or Sailing Directions	the National Weather Service Observing Handbook No.1, Marine Surface Observations	a weather forecast	the sky overhead	
3	1790	C	A Doppler speed log indicates speed through the water _____.	at all times	in the bottom return mode	in the volume reverberation mode	only when there is no current	
3	1791	D	The accuracy of an azimuth circle can be checked by _____.	sighting a terrestrial range in line and comparing the observed bearing against the charted bearing	aligning the relative bearing markings so that 000° is on the lubber's line and the line of sight passes over the center of the compass	ensuring that the alignment marks on the inner face of the circle are in line with those on the repeater on relative bearings of 000° and 090°	comparing observed azimuths at different altitudes with computed values at the times of observation to see if the difference is constant	
3	1792	D	A vessel is heading magnetic east and its magnetic compass indicates a heading of 086°. What action should be taken to remove this error during compass adjustment? (See Illustration D052NG)	If the red ends of the magnets are to port you should lower the athwartships tray.	If the blue ends of the magnets are to port, and the athwartships tray is at the top, you should reverse the magnets.	If the red ends of the magnet are aft, and the fore-and-aft tray is at the top, you should add some more magnets.	If the red ends of the magnets are aft you should lower the fore-and-aft tray.	D052NG
3	1793	C	Which weather element cannot be measured accurately while on board a moving vessel?	relative humidity	temperature	true wind speed	atmospheric pressure	
3	1794	A	Why are low altitude sun sights not generally used?	Errors due to unusual refraction may exist.	Sextants may have large errors at small angles of elevation.	Modern sight reduction tables are not complete for low altitudes below 5°.	The glare on the horizon causes irradiation errors.	
3	1795	B	Which weather element cannot be measured accurately while on board a moving vessel?	Relative humidity	Cloud base height	Temperature	Atmospheric pressure	

3	1796	D	Which weather element cannot be measured accurately while on board a moving vessel?	Relative humidity	Atmospheric pressure	Temperature	Wave period	
3	1797	A	A phenomenon where the atmospheric pressure is higher than that of other surrounding regions is called _____.	a high pressure area	a low front or an occluded front	the "trade winds"	the "doldrums"	
3	1798	C	The climate of the northern Gulf coast _____.	is humid and subtropical throughout the year	has an east coast marine type of climate	is a warm marine type of climate	varies from warm to subtropical	
3	1800	B	In order to insure that a RACON signal is displayed on the radar, you should _____.	increase the brilliance of the PPI scope	turn off the interference controls on the radar	use the maximum available range setting	increase the radar signal output	
3	1801	B	A phenomenon where the atmospheric pressure is higher than that of other surrounding regions is called _____.	the "trade winds"	an anticyclone	a low front or an occluded front	the "doldrums"	
3	1802	B	What is the major advantage of high altitude observations?	Errors due to unusual parallax are eliminated.	The same body can be used for a fix from observations separated by several minutes.	The declination is the only information needed from the almanac.	The semidiameter correction of the sextant altitude is eliminated.	
3	1803	C	The difference between the DR position and a fix, both of which have the same time, is caused by _____.	variation	deviation	current	leeway	
3	1804	D	Magnetic information on a chart may be _____.	found in the center(s) of the compass rose(s)	indicated by isogonic lines	found in a note on the chart	All of the above	
3	1805	D	A phenomenon where the atmospheric pressure is higher than that of other surrounding regions is called _____.	the "trade winds"	a low front or an occluded front	the doldrums	a "high"	
3	1806	A	Sometimes foreign charts are reproduced by NGA (NIMA). On such a chart a wire dragged (swept) area may be shown in purple or _____.	green	red	magenta	yellow	
3	1807	B	Which weather system produces strong cold winds called "Northers" during the winter months in the Gulf of Mexico?	A polar maritime air mass	A high pressure system	A cyclone	A low pressure system	
3	1808	A	A white buoy with an open-faced orange diamond on it indicates _____.	danger	vessels are excluded from the area	the buoy is a mooring buoy	operating restrictions are in effect	
3	1809	D	What occurs when rising air cools to the dew point?	Advection fog forms	Humidity decreases	Winds increase	Clouds form	

3	1810	C	Where will you find information about the duration of slack water?	Tide Tables	Sailing Directions	Tidal Current Tables	American Practical Navigator	
3	1811	B	To find a magnetic compass course from a true course you must apply _____.	deviation	deviation and variation	variation	magnetic anomalies (local disturbances)	
3	1812	D	The line of position should be plotted as a circle around the GP of the body when the Ho exceeds what minimum value?	80°	83°	85°	87°	
3	1813	D	When entering a U.S. port from seaward, the lighted buoy to starboard shall have a _____.	light characteristic of Morse (A)	white light	green light	red light	
3	1814	A	You are enroute to assist vessel A. Vessel A is underway at 4.5 knots on course 233°T, and bears 264°T at 68 miles from you. What is the course to steer and running time at 13 knots to intercept vessel A?	254°, 7h 37m	274°, 8h 35m	254°, 8h 35m	274°, 7h 37m	
3	1815	A	Which weather system produces strong cold winds called "Northers" during the winter months in the Gulf of Mexico?	An anticyclone	A polar maritime air mass	A cyclone	A low pressure system	
3	1816	D	A white buoy with an orange circle marked on it indicates _____.	danger	vessels are excluded from the area	a mooring buoy	operating restrictions are in effect	
3	1817	A	A white buoy marked with an orange diamond having a cross centered within it defines _____.	directions	dangers	exclusion areas	All of the above	
3	1819	B	You are inbound in a channel marked by a range. The range line is 133° T. You are steering 129° T and have the range in sight as shown. Which action should you take?	Continue on the present heading until the range is in line then alter course to the right.	Immediately alter course to the right to bring the range in line.	Immediately alter course to the left to bring the range in line.	Immediately alter course to 133° T if the range is closing.	D048NG
3	1821	C	You are inbound in a channel marked by a range. The range line is 040° T. You are steering 036°T. The range is in sight as shown and is closing. Which action should you take?	Continue on the present heading until the range is in line then alter course to the left.	Immediately alter course to the right to bring the range in line.	Continue on course until the range is closed, then alter course to the right.	Immediately alter course to 040° T.	D047NG
3	1822	A	What is the relative bearing of an object broad on the port bow?	315°	330°	345°	360°	

3	1823	B	You are inbound in a channel marked by a range. The range line is 216° T. You are steering 213° T and have the range in sight as shown. Which action should you take?	Continue on the present heading until the range is in line then alter course to the right.	Immediately alter course to the right to bring the range in line.	Immediately alter course to the left to bring the range in line.	Immediately alter course to 216° T if the range is closing.	D048NG
3	1825	B	You are approaching a drawbridge and have sounded the request-for-opening signal. The bridge has responded with five short blasts. How would you respond?	Five short blasts	White flag raised up and down	Confirm response on radiotelephone	Any of these signals is considered a valid reponse	
3	1826	B	The illustration represents a fixed C of E lock and dam. What navigational light(s) is(are) exhibited at the position indicated by the letter D in the illustration?	One red light	Two green lights	Three green lights	No light	DO36NG
3	1827	B	The position labeled "D" was plotted because _____.	a dead reckoning position is plotted within 30 minutes of a running fix	a dead reckoning position is plotted for each course change	the vessel's speed changed at 1125	All of the above	D051NG
3	1828	D	When entering from seaward, a buoy displaying a single-flashing red light indicates _____.	a junction with the preferred channel to the left	a wreck to be left on the vessel's port side	a sharp turn in the channel to the right	the starboard side of the channel	
3	1830	D	A vessel heading NNW is on a course of _____.	274.5°	292.0°	315.5°	337.5°	
3	1691	A	Which of the following is associated with consistently high barometric pressure?	The horse latitudes	The doldrums	The prevailing westerlies	The trade winds	
3	1692	B	The force resulting from the earth's rotation that causes winds to deflect to the right in the Northern Hemisphere and to the left in the Southern Hemisphere is called _____.	pressure gradient	Coriolis effect	aurora borealis	ballistic deflection	
3	1693	C	A phenomenon where the atmospheric pressure is higher than that of other surrounding regions is called _____.	the "trade winds"	a low front or an occluded front	a high pressure area; an anticyclone; or a "high"	the "doldrums"	
3	1694	C	In the Southern Hemisphere the wind circulation in a high pressure system rotates _____.	clockwise and inward	clockwise and outward	counterclockwise and outward	counterclockwise and inward	
3	1695	B	Compared to a low pressure system, generally the air in a high is _____.	warmer, less dense, and less stable	cool, more dense, and drier	muggy and cloudy	extremely moist with high relative humidity	
3	1696	B	Two well-developed high pressure areas may be separated by a _____.	hill of low pressure	trough of low pressure	valley of low pressure	ridge of low pressure	
3	1697	C	In the Northern Hemisphere, if the center of a high pressure area is due west of you, what wind direction would you expect?	South to west	South to east	North to west	North to east	

3	1698	B	When a high pressure system is centered north of your vessel in the Northern Hemisphere _____.	you should experience hot, moist, clear weather	the wind direction is generally easterly	the winds should be from the southwest at your location	the winds should be brisk	
3	1699	B	In the Northern Hemisphere, when the center of a high pressure system is due east of your position, you can expect winds from the _____.	south to west	south to east	north to west	north to east	
3	1700	A	Generally speaking, you should expect to find low atmospheric pressure prevailing in the earth's _____.	equatorial area	polar regions	mid-latitudes	All of the above	
3	1701	B	Which general weather conditions should you expect to find in a low pressure system?	Fair weather	Precipitation and cloudiness	Scattered clouds at high elevations	Gradual clearing and cooler temperatures	
3	1702	A	In a cyclone the lowest pressure is found in the _____.	center	outer edge	warm front	cold front	
3	1703	C	In the Northern Hemisphere, when the wind at your location is northerly, the low pressure center causing the wind is located to your _____.	NNW	WSW	ESE	SSW	
3	1704	B	If the center of low pressure is due west of you in the Northern Hemisphere, which wind direction should you expect?	South to west	South to east	West to north	North to east	
3	1705	C	Two well-developed low pressure areas may be separated by a _____.	trough of higher pressure	hill of higher pressure	ridge of higher pressure	valley of higher pressure	
3	1706	A	In the Northern Hemisphere a wind is said to veer when the wind _____.	changes direction clockwise, as from north to east, etc.	changes direction violently and erratically	remains constant in direction and speed	changes direction counterclockwise, as from south to east, etc.	
3	1707	C	"Surface circulation" is another term for _____.	cyclones	air in motion at all levels of the atmosphere	wind in the lower troposphere	ocean currents	
3	1708	A	What generally occurs when the land is cooler than the nearby water?	A land breeze	A sea breeze	A norther	A prevailing westerly	
3	1709	C	The Beaufort scale is used to estimate the _____.	wind direction	percentage of cloud cover	wind speed	barometric pressure	
3	1710	B	A gale is characterized by a wind speed of _____.	10 to 20 knots	34 to 47 knots	48 to 63 knots	64 to 83 knots	
3	1711	A	An instrument that indicates wind direction is known as a(n) _____.	weather vane, wind vane or wind sock	hydrometer	hygrometer	sling psychrometer	

3	1712	D	Tornados are often associated with _____.	winds in the warm sector ahead of a cold front and travel from southwest towards the east or northeast	squall lines and very heavy thunderstorm activity	winds that may be in excess of 200 knots and destructive funnel clouds	All of the above	
3	1713	B	When a tornado moves over the water from land it is called a _____.	tornado	waterspout	hurricane	cyclone	
3	1714	A	Which statement concerning storm surges on the Great Lakes is FALSE?	They are common along the deeper areas of the lakes.	They cause rapid differences in levels between one end of the lake and the other.	The greatest water level difference occurs when the wind is blowing along the longitudinal axis of the lake.	If the wind subsides rapidly, a seiche effect will most likely occur.	
3	1715	C	The hurricane season generally occurs from _____.	August to January	July to December	June to November	January to June	
3	1716	B	The hurricane season in the North Atlantic Ocean reaches its peak during the month of _____.	June	September	November	July	
3	1717	B	A tropical storm is a tropical cyclone that generates winds of _____.	between 20 and 33 knots	between 34 and 63 knots	over 63 knots	None of the above	
3	1718	D	A hurricane is characterized by winds of _____.	up to 33 knots	34 to 47 knots	48 to 63 knots	64 knots or greater	
3	1719	B	What is the direction of rotation of tropical cyclones, tropical storms and hurricanes in the Northern Hemisphere?	Clockwise and outward	Counterclockwise and inward	Counterclockwise and outward	Clockwise and inward	
3	1720	A	In the Southern Hemisphere winds in a low pressure system rotate in a _____.	clockwise direction	northeasterly direction	northerly direction	counterclockwise direction	
3	1721	C	A storm's track is characterized by all of the following except _____.	the direction the storm has come from	the direction in which the storm is moving	the speed at which the storm is moving	the path taken by the storm	
3	1722	C	Hurricanes may move in any direction. However, it is rare and generally of short duration when a hurricane in the Northern Hemisphere moves toward the _____.	west or northwest	northeast	southeast	north	
3	1723	C	The intensity of a hurricane as it reaches higher latitudes and cooler waters _____.	Increases	remains the same	decreases	None of the above	

3	1724	C	What is the first visible indication of the presence of a tropical cyclone or hurricane?	Stratocumulus clouds or strange birds	Rain and increasing winds	An exceptionally long swell	Dark clouds and the "bar" of the storm	
3	1725	B	Your present weather is sunny with a steady barometer. A low swell approaches your vessel from the south with crests passing at relatively long periods of about four per minute. This usually indicates _____.	a warm front from the south	a tropical cyclone south of your vessel	a hurricane about 100 miles south of your vessel and heading in your direction	an extra-tropical cyclone	
3	1726	D	How can you estimate the position of a tropical storm's center?	With a radio weather bulletin or weather fax	using shipboard radar	observe the wind direction and apply Buys Ballot's law	All of the above	
3	1727	A	What enables you to estimate the bearing of a storm's center?	Buys Ballot's Law	An educated guess	Pascal's Law	The left-hand rule	
3	1728	B	If a hurricane several hundred miles away is moving in your general direction your barometer would _____.	start to rise rapidly	start to fall gradually	rise slowly, begin "pumping" and then start a slow, steady fall	remain steady	
3	1729	A	The first cloud formations you can use to indicate the bearing of the center of a hurricane or tropical storm are _____.	the point of convergence of the cirrus clouds	the direction of movement of thunderstorms on radar	the darkest point of the clouds in the "bar" of the storm	the point of origin of the altostratus clouds	
3	1730	A	If you observe the point of cloud convergence shifting to the right and the "bar" of the storm appears to move along the horizon _____.	the center of the storm will by-pass you	the storm will strike you on the starboard side	you are in the direct path of the storm and should take immediate steps to batten down loose gear	the storm is starting to break up	
3	1731	D	When your vessel is on or near the path of an approaching tropical storm the _____.	wind direction remains steady	wind speed increases	barometer falls	All of the above	
3	1732	A	The eye of a hurricane is surrounded by dense black cumulonimbus clouds which are called the _____.	wall cloud	nimbostratus cloud	bar	funnel	
3	1733	C	An instrument which maintains a continuous record of temperature changes is called a _____.	thermometer	barometer	thermograph	hygrograph	
3	1734	C	The eye of the hurricane has _____.	very high barometric pressure	average barometric pressure	the lowest barometric pressure	no change in barometric pressure	

3	1735	D	A vessel entering the eye of a hurricane should expect _____.	moderating winds and heavy confused seas to strike his vessel from all directions	the winds to increase to hurricane force and strike from a different direction as the eye passes	the barometer to reach the lowest point	All of the above	
3	1736	D	Which statement is FALSE concerning the dangerous semicircle of a hurricane?	The actual wind speed is increased by the forward movement of the storm along its track	the direction of the wind and the sea might carry a vessel directly into the storm's path	The seas are higher	The rain is heavier	
3	1737	C	You can determine if your vessel's position is in the dangerous or navigable semicircle of a hurricane by _____.	observing whether the wind is veering or backing	plotting two or more recent storm positions from weather bulletins	Both A and B	Neither A nor B	
3	1738	D	In the Northern Hemisphere, the right half of the storm is known as the dangerous semicircle because _____.	The wind speed is greater here since the wind is traveling in the same general direction as the storm's track	the direction of the wind and seas might carry a vessel into the path of the storm	the seas are higher because of greater wind speed	All of the above	
3	1739	B	Which condition indicates that you are in a hurricane's dangerous semicircle in the Northern hemisphere?	A backing wind	A veering wind	A norther	A strong, gusty wind	
3	1740	A	If you are in the dangerous semicircle of a hurricane you can expect all of the following except _____.	backing winds	high seas	high winds	veering winds	
3	2016	A	Which statement about the Flinders bar of the magnetic compass is CORRECT?	It compensates for the error caused by the vertical component of the Earth's magnetic field.	It compensates for error caused by the heeling of a vessel.	It compensates for quadrantal deviation.	It is only needed in equatorial waters.	
3	2018	C	Which magnetic compass corrector(s) can be set while the vessel is on a heading of magnetic east or magnetic west?	Quadrantal spheres	Heeling magnet	Flinders bar	Athwartships magnets	
3	2019	B	At evening stars, the last stars that should be observed are those with an azimuth in what quadrant?	Southern	Western	Northern	Eastern	

3	2020	C	A vessel heading ENE is on a course of _____.	022.5°	045.0°	067.5°	090.0°	
3	2021	D	While on watch, you notice that the air temperature is dropping and is approaching the dew point. Which type of weather should be forecasted?	Hail	Heavy rain	Sleet	Fog	
3	2022	C	The GP of a body for a high altitude sight is determined from the declination and the _____.	right ascension	sidereal hour angle	Greenwich hour angle	observed altitude	
3	2024	D	In the North Sea area, you sight a buoy with a quick light showing 3 flashes every 10 seconds. Which topmark in illustration D030NG would be fitted to this buoy under the IALA Buoyage Systems?	A	B	C	D	D030NG
3	2028	C	Which stock number indicates an NGA (NIMA) chart designed for navigation and anchorage in a small waterway?	WOAZC17	LCORR5876	15XHA15883	PILOT55	
3	2030	B	A vessel heading NE is on a course of _____.	022.5°	045.0°	067.5°	090.0°	
3	2040	A	A vessel heading NNE is on a course of _____.	022.5°	045.0°	067.5°	090.0°	
3	2042	C	At morning stars, the last stars that should be observed are those with an azimuth in which quadrant?	Eastern	Southern	Western	Northern	
3	2043	D	Stormy weather is usually associated with regions of _____.	changing barometric pressure	high barometric pressure	steady barometric pressure	low barometric pressure	
3	2044	B	What is the relative bearing of an object broad on the port quarter?	195°	225°	240°	265°	
3	2048	A	You are upbound approaching a lock and dam and see two green lights in a vertical line. This indicates _____.	the downstream end of an intermediate wall	that a double lockage is in progress	the downstream end of the land wall	the navigable pass of a fixed weir dam	
3	2049	A	At morning stars, the first stars that should be observed are those with an azimuth in which quadrant?	Eastern	Southern	Western	Northern	
3	2050	C	The point where the vertical rise or fall of tide has stopped is referred to as _____.	slack water	the rip tide	the stand of the tide	the reverse of the tide	
3	2052	A	Under the chart numbering system used by NGA (NIMA), the first digit of a multi-digit number indicates _____.	the general geographic area	the general scale of the chart	whether it is a major or minor chart	the projection used to construct the chart	

3	2053	B	When outbound from a U.S. port, a buoy displaying a flashing red light indicates _____.	a sharp turn in the channel to the right	the port side of the channel	a junction with the preferred channel to the left	a wreck to be left on the vessel's starboard side	
3	2060	C	What is the relative bearing of an object broad on the starboard quarter?	045°	090°	135°	225°	
3	2061	B	Fog is likely to occur when there is little difference between the dew point and the _____.	relative humidity	air temperature	barometric pressure	absolute humidity	
3	2067	A	The Light List indicates that a light has a nominal range of 10 miles and is 11 feet high. If the visibility is 5 miles and your height of eye is 20 feet, at what approximate distance will you sight the light?	6.3 miles	7.4 miles	8.4 miles	9.0 miles	
3	2068	A	The illustration represents a movable dam. If there is high water and the wickets are down so that there is an unobstructed navigable pass through the dam, what light(s) will be shown at D if the lock walls and piers are not awash?	One red light	Two red lights	Three red lights	One amber light	D037NG
3	2070	D	What is the relative bearing of an object on the port beam?	045°	090°	180°	270°	
3	2073	D	Chart legends printed in capital letters show that the associated landmark is _____.	a radio transmitter	a government facility or station	inconspicuous	conspicuous	
3	2074	A	When approaching a lock and at a distance of not more than a mile, vessels desiring a single lockage shall sound which signal?	One long blast followed by one short blast	One short blast followed by one long blast	Two short blasts	Two long blasts	
3	2075	C	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained by consulting the _____.	Light List Vol. V	U.S. Coast Pilot	Broadcast Notice to Mariners	Sailing Directions	
3	1831	C	IN REGION A of the IALA Buoyage System, when entering from seaward, the port side of a channel would be marked by a _____.	red conical buoy	black can buoy	red can buoy	black conical buoy	
3	1832	D	Which magnetic compass corrector(s) can be set while the vessel is on a heading of magnetic northeast or magnetic southeast?	Flinders bar	Heeling magnets	Fore-and-aft magnets	Quadrantal spheres	
3	1836	D	At evening stars, the first stars that should be observed are those with an azimuth in what quadrant?	Southern	Western	Northern	Eastern	

3	1838	A	The Light List shows a lighted aid to navigation on the left bank. This means that the light can be seen on the starboard side of a vessel _____.	ascending the river	descending the river	crossing the river	proceeding towards sea	
3	1840	C	A vessel heading NW is on a course of _____.	274.5°	292.5°	315.0°	337.5°	
3	1841	A	The letter A as shown represents the _____.	sensible horizon	geoidal horizon	visible horizon	celestial horizon	D006NG
3	1842	D	What is the major problem with taking high altitude observations?	Possible errors due to unusual refraction may exist.	The tables are not as accurate due to inherent errors in the spherical triangle at high altitudes.	Rapidly changing altitudes make it difficult to get an accurate altitude.	It is difficult to establish the point where the sextant is vertical to the horizon.	
3	1844	D	What is the relative bearing of an object sighted dead ahead?	180°	090°	015°	000°	
3	1848	D	The buoy symbol printed on your chart is leaning to the northeast. This indicates _____.	you should stay to the north or east of the buoy	you should stay to the west or south of the buoy	the buoy is a major lighted buoy	nothing special for navigational purposes	
3	1850	B	A vessel heading WNW is on a course of _____.	270.0°	292.5°	315.0°	337.5°	
3	1852	A	When plotting a circle of equal altitude for a high altitude sight, the radius of the circle is determined by the formula _____.	90° - Ho	180° - GHA	GHA - LHA	z - d	
3	1858	B	A white buoy with an orange cross within a diamond marked on it indicates _____.	danger	vessels are excluded from the area	an anchorage area	operating restrictions are in effect	
3	1859	C	While proceeding downriver (descending) you sight a red diamond-shaped panel with small, red reflector squares in each corner on the left bank. Under the U.S. Aids to Navigation System on the Western Rivers this is a _____.	special purpose signal	passing daymark	crossing daymark	cable crossing	
3	1860	C	A vessel heading WSW is on a course of _____.	202.5°	225.0°	247.5°	271.0°	
3	1862	C	What is the relative bearing of an object broad on the starboard quarter?	090°	105°	135°	150°	
3	1866	A	What term is used to describe a tank barge constructed with the structural framing inside the cargo tank and the side shell plating containing the cargo?	Single hull	Shell plated	Hopper type	Independent tank	

3	1870	B	A vessel heading SW is on a course of _____.	202.5°	225.0°	247.5°	270.0°	
3	1871	C	A lighted buoy to be left to starboard, when entering a U.S. port from seaward, shall have a _____.	green light	white light	red light	light characteristic of Morse (A)	
3	1872	C	To find a magnetic compass course from a true course you must apply _____.	deviation	variation	deviation and variation	magnetic anomalies (local disturbances)	
3	1873	D	Lighted information markers show _____.	green lights	red lights	yellow lights	white lights	
3	1874	D	Lighted white and orange buoys must show which color light?	Orange	Red	Alternating yellow and white	White	
3	1875	C	The position labeled "E" was plotted because _____.	a dead reckoning position is plotted within a half-hour of each course change	the position is a running fix	a dead reckoning position is plotted for each speed change	the vessel's position was fixed at 1145	D051NG
3	1879	C	A chart projection depicting the poles and a small area on either side of a connecting meridian, that is sometimes used for star charts, is the _____.	azimuthal gnomonic projection	Lambert conformal projection	transverse Mercator projection	polyconic projection	
3	1880	A	A vessel heading SSW is on a course of _____.	202.5°	225.0°	247.5°	270.0°	
3	1882	D	The GP of a body for a high altitude sight is determined from the Greenwich hour angle and the _____.	circle of equal altitude	zenith distance	azimuth angle	declination	
3	1883	B	Pressure gradient is a measure of _____.	a high-pressure area	pressure difference over horizontal distance	pressure difference over time	vertical pressure variation	
3	1884	D	If a sound signal is emitted from the oscillator of a fathometer, and two seconds elapse before the returning signal is picked up, what depth of water is indicated?	1648 fathoms	1248 fathoms	1048 fathoms	824 fathoms	
3	1885	A	Under the Uniform State Waterway Marking System a mooring buoy is painted _____.	white with a blue band	yellow	any color that does not conflict with the lateral system	white with a green top	
3	1886	C	What is the relative bearing of an object dead astern?	000°	090°	180°	270°	
3	1887	D	The Light List indicates that a light has a nominal range of 10 miles and is 11 feet high. If the visibility is 15 miles and your height of eye is 20 feet, at what approximate distance will you sight the light?	12.0 miles	11.0 miles	10.0 miles	9.0 miles	

3	1888	B	What is the relative bearing of an object broad on the starboard bow?	030°	045°	060°	075°	
3	1890	C	A vessel heading SSE is on a course of _____.	112.5°	135.0°	157.5°	180.0°	
3	1892	D	The shoreline shown on nautical charts of areas affected by large tidal fluctuations is usually the line of mean _____.	lower low water	low water	tide level	high water	
3	1898	D	The subregions of the United States Gulf and East Coasts are numbered 11, 12 and 13 within the chart numbering system. Which chart number indicates a chart for either the Gulf or East coast?	14312	25134	21105	11032	
3	1899	D	What is the relative bearing of an object broad on the starboard beam?	045°	060°	075°	090°	
3	1900	A	A parallax correction is NOT applied to observations of the _____.	stars	Moon	Sun	Planets	
3	1902	C	Under the numbering system used by NGA (NIMA), a four digit number is used for _____.	large scale charts of infrequently navigated areas such as the polar regions	charts of rivers or canal systems such as the Ohio River or Erie Canal	non-navigational materials, such as a chart correction template or maneuvering board	foreign charts reproduced by NGA (NIMA)	
3	1904	B	In the horizon system of coordinates what is equivalent to the parallels of declination of the celestial equator system?	Vertical circles	Parallels of altitude	Zenith distance	Azimuth angle	
3	1905	D	In order to insure that the racon signal is visible on your 3 cm radar, the _____.	10 cm radar should be placed on standby or turned off	gain control should be turned to maximum	radar should be stabilized, head up	rain clutter control should be off but, if necessary, may be on low	
3	1906	A	In the horizon system of coordinates what is equivalent to latitude on the Earth?	Altitude	Zenith	Declination	Zenith distance	
3	1907	C	Information about direction and velocity of rotary tidal currents is found in the _____.	Tide Tables	Nautical Almanac	Tidal Current Tables	Mariner's Guide	
3	1908	D	What is the brightest navigational planet?	Saturn	Jupiter	Mars	Venus	
3	1909	D	In the horizon system of coordinates what is equivalent to the equator on the Earth?	Prime vertical circle	Principal vertical circle	Parallels of altitude	Horizon	
3	1910	B	What sextant correction corrects the apparent altitude to the equivalent reading at the center of the Earth?	Phase	Parallax	Semidiameter	Augmentation	
3	1914	B	In the horizon system of coordinates what is equivalent to longitude on the Earth?	Altitude	Azimuth angle	Horizon	Zenith distance	

3	1916	C	The prime vertical is the reference point from which the angle of which type of observation is measured?	Sextant angle	Azimuth	Amplitude	Local apparent noon	
3	1918	B	The Moon appears larger in diameter at the zenith than when near the horizon. What is this called?	Parallax in altitude	Augmentation	Horizontal parallax	Libration	
3	1919	D	The nadir is the point on the celestial sphere that is _____.	90° away from the zenith	over Greenwich	on the western horizon	directly below the observer	
3	1920	A	Because the actual center of some planets may differ from the observed center, the navigator applies a correction known as the _____.	phase correction	refraction correction	semidiameter correction	augmentation correction	
3	1922	C	In the North Sea area, you sight a buoy showing a quick white light with 9 flashes every 15 seconds. Which of the four topmarks shown would be fitted to the buoy?	A	B	C	D	D030NG
3	1923	B	Little or no change in the barometric reading over a twelve hour period indicates _____.	stormy weather is imminent	that present weather conditions will continue	a defect in the barometer	increasing wind strength	
3	1924	B	The point on the celestial sphere that is directly below an observer is the _____.	pole	nadir	node	zenith	
3	1925	C	Above-normal tides near the center of a hurricane may be caused by the _____.	high barometric pressure	jet stream	storm surge	torrential rains	
3	1926	B	The prime vertical is the great circle on the celestial sphere that passes through the _____.	celestial poles and the zenith	zenith, nadir and the east point of the horizon	celestial poles and the celestial body	zenith, nadir and celestial body	
3	1928	D	"Rotation" is the _____.	wobbling of the Earth about its axis	motion of bodies in the solar system relative to the stars	motion of a celestial body in its orbit	spinning of a celestial body about its axis	
3	1930	B	The phase correction should be applied to sights of Venus and Mars _____.	during day time observations only	during twilight observations only	at all times	when observed at altitudes of less than 25°	
3	1932	B	The zenith is the point on the celestial sphere that is _____.	90° away from the poles	directly over the observer	on the eastern horizon	over Greenwich	
3	1934	D	The great circle of the celestial sphere that passes through the zenith, nadir, and the eastern point of the horizon is the _____.	principal vertical	hour circle	celestial meridian	prime vertical	
3	1936	C	The parallel of latitude at 66°33'N is the _____.	Tropic of Cancer	Tropic of Capricorn	Arctic Circle	ecliptic	
3	1940	C	The diameter of the Sun and Moon as seen from the Earth varies slightly but averages about _____.	1'	52'	32'	15.5'	

3	1941	D	IN REGION A of the IALA Buoyage System, when entering from seaward, the starboard side of a channel would be marked by a _____.	red can buoy	red conical buoy	green can buoy	green conical buoy	
3	1942	C	In the horizon system of coordinates what is equivalent to the declination of the equator system?	Nadir	Azimuth angle	Altitude	Zenith distance	
3	1944	A	In the horizon system of coordinates what is the equivalent to the celestial equator of the celestial equator system?	Horizon	Prime vertical circle	Prime meridian	Principal vertical circle	
3	1946	B	When making landfall at night, you can determine if a light is a major light or an offshore buoy by _____.	the intensity of the light	checking the period and characteristics against the Light List	the color, because the buoy will have only a red or a green light	All of the above can be used to identify the light.	
3	1948	B	"Space motion" is the _____.	action causing precession of the equinoxes	motion of a body in the solar system relative to the stars	motion of a celestial body in its orbit	irregularity in the motion of the Earth caused by other celestial bodies	
3	1949	C	"Revolution" is the _____.	wobbling of the Earth about its axis	motion of bodies in the solar system relative to the stars	motion of a celestial body in its orbit	spinning of a celestial body about its axis	
3	1950	B	The error in a sextant altitude caused by refraction is greatest when the celestial body is _____.	high in the sky	near the horizon	rising	at or near transit	
3	1951	A	Spring tides occur _____.	when the moon is new or full	when the moon and sun have declination of the same name	only when the moon and sun are on the same sides of the earth	at the beginning of spring when the sun is over the equator	
3	1952	B	The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?	Libration in longitude	Geocentric libration	Diurnal libration	Physical libration	
3	1954	B	In the horizon system of coordinates what is equivalent to the poles on the Earth?	Celestial poles	Zenith, nadir	Ecliptic poles	Nodes	
3	1956	A	In the North Sea area, you sight a buoy showing a quick white light with 6 flashes, followed by one long flash at 15 second intervals. Which of the four topmarks shown would be fitted to this buoy?	A	B	C	D	D030NG
3	1958	A	The spinning of a celestial body about its axis is known as _____.	rotation	revolution	space motion	nutation	

3	1960	C	Astronomical refraction causes a celestial body to appear _____.	to the left of its position in the Northern Hemisphere and to the right in the Southern Hemisphere	to the right of its position in the Northern Hemisphere and to the left in the Southern Hemisphere	higher than its actual position	lower than its actual position	
3	1961	D	What kind of pressure systems travel in tropical waves?	Subsurface pressure	Terrastatic pressure	High pressure	Low pressure	
3	1962	A	When outbound from a U.S. port, a buoy displaying a flashing red light indicates _____.	the port side of the channel	a sharp turn in the channel to the right	a junction with the preferred channel to the left	a wreck to be left on the vessel's starboard side	
3	1964	C	The great circle on the celestial sphere that passes through the zenith and the north and south poles is the _____.	hour circle	prime vertical	principal vertical	ecliptic	
3	1968	B	The Earth has the shape of a(n) _____.	sphere	oblate spheroid	spheroid of revolution	oblate eggoid	
3	1969	D	The precession of the equinoxes of the Earth is _____.	the gradual increase in the period of rotation caused by the effects of the Moon	the irregularity of the Earth's orbit caused by influences of the Sun and Moon	caused by the elliptical shape of the Earth's orbit	similar to a top spinning with its axis tilted	
3	1970	C	The azimuth angle of a sun sight is always measured from the _____.	Greenwich meridian	prime vertical circle	principal vertical circle	first point of Aries	
3	1972	C	The point on the celestial sphere that is directly over the observer is the _____.	node	pole	zenith	nadir	
3	1974	C	Ocean currents are well defined and _____.	create large waves in the direction of the current	change direction 360° during a 24 hour period	remain fairly constant in direction and velocity throughout the year	are characterized by a light green color	
3	1976	A	The Moon is nearest to the Earth at _____.	perigee	the vernal equinox	the new Moon	the full Moon	
3	1978	B	A celestial body's complete orbit around another body is _____.	a rotation	a revolution	space motion	nutation	
3	1979	B	The principal vertical circle is that great circle on the celestial sphere that passes through the _____.	zenith and the celestial body	zenith and the north and south poles	poles and Greenwich	zenith and is parallel to the horizon	
3	1982	D	In the horizon system of coordinates what is equivalent to the Greenwich hour angle of the celestial equator system?	Zenith distance	Coaltitude	Altitude	Azimuth	

3	1984	D	When a dual purpose marking is used, the mariner following the Intracoastal Waterway should be guided by the _____.	color of the aid	shape of the aid	color of the top band	shape of the yellow mark	
3	1986	B	The Moon is farthest from the Earth at _____.	the full Moon	apogee	the lunar solstice	quadrature	
3	1987	A	An instrument useful in predicting fog is the _____.	sling psychrometer	microbarograph	anemometer	aneroid barometer	
3	1988	A	The parallel of latitude at 23°27'N is the _____.	Tropic of Cancer	Tropic of Capricorn	Arctic Circle	ecliptic	
3	1989	C	In the horizon system of coordinates what is the equivalent to the meridians on the Earth?	Horizon	Hour circle	Vertical circles	Celestial meridians	
3	1990	B	The navigational triangle uses parts of two systems of coordinates, one of which is the celestial equator system, the other system is the _____.	terrestrial system	horizon system	astronomical system	ecliptic system	
3	1992	B	The parallel of latitude at 23°27'S is the _____.	Tropic of Cancer	Tropic of Capricorn	Arctic Circle	ecliptic	
3	1994	C	Fomalhaut is found in what constellation?	Leo	Taurus	Pisces	Canis Major	
3	1996	B	When approaching a lock entrance, the visual signal displayed when a single lock is ready for entrance is a flashing _____.	red light	green light	amber light	white light	
3	2000	B	A vessel heading SE is on a course of _____.	112.5°	135.0°	157.5°	180.0°	
3	2001	B	You have changed course and steadied up on a range. Your heading is 285°T, same as the charted range, and it appears as in illustration D048NG. After several minutes the range appears as in illustration D047NG and your heading is still 285°T. This indicates a _____.	south-setting current	north-setting current	leeway caused by a NE'ly wind	course made good to the left of the DR track	D047NG
3	2002	C	What term is used to describe a river barge designed to carry coal or any similar cargo not requiring weather protection?	Single skin	Double skin	Open hopper	Deck barge	
3	2004	D	The velocity of the wind, its steady direction, and the amount of time it has blown determines a wind driven current's _____.	temperature	density	deflection	speed	
3	2006	C	What is the relative bearing of an object broad on the port beam?	315°	300°	270°	235°	
3	2007	B	Information about the direction and velocity of rotary tidal currents is found in the _____.	Mariner's Guide	Tidal Current Tables	Nautical Almanac	Tide Tables	

3	2008	B	What term is used to describe a tank barge constructed with the structural framing outside the cargo tank and the cargo tank plating separated from the shell plating?	Shell plated	Double hull	Hopper type	Independent tank	
3	2010	A	A vessel heading ESE is on a course of _____.	112.5°	135.0°	157.5°	180.0°	
3	2014	B	Which stock number indicates an NGA (NIMA) chart designed for navigation outside of outlying reefs and shoals?	19BCO19243	WOPGN530	LCORR5873	14XCO14902	
3	2076	A	You should plot your dead reckoning position _____.	from every fix or running fix	from every estimated position	every three minutes in pilotage waters	only in pilotage waters	
3	2078	D	If a towboat requires a double lockage it shall give which sound signal at a distance of not more than one mile from the lock?	One short blast followed by two long blasts	One long blast followed by one short blast	Two long blasts followed by one short blast	One long blast followed by two short blasts	
3	2079	D	Permission to enter the riverward chamber of twin locks is given by the lockmaster and consists of which sound signal?	One short blast	Two short blasts	One long blast	Two long blasts	
3	2080	B	You are on course 030°T. The relative bearing of a lighthouse is 45°. What is the true bearing?	015°	075°	255°	345°	
3	2081	D	You are taking bearings on two known objects ashore. The BEST fix is obtained when the angle between the lines of position is _____.	30°	45°	60°	90°	
3	2082	A	You are holding position above Gallipolis Lock and Dam when you hear two long blasts of the horn from the lock. This indicates that you should _____.	enter the riverward lock	hold position until two more upbound tows have locked through	enter the landward lock	hold position until the lower gates are closed	
3	2083	B	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained by consulting the _____.	U.S. Coast Pilot	Broadcast Notice to Mariners	Sailing Directions	Light List Vol. V	
3	2084	A	You are approaching Gallipolis Lock and Dam. The traffic signal light is flashing red. You should _____.	hold your position and not attempt to enter the lock	approach the lock slowly under full control	proceed at normal speed to enter the lock	None of the above	
3	2085	A	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained from the _____.	Broadcast Notice to Mariners	Light List Vol. V	U.S. Coast Pilot	Sailing Directions	

3	2086	A	You are downbound on the Ohio River locking through Greenup. The chamber has been emptied and the lower gates are open. You hear one short blast of the whistle from the lock. You should _____.	leave the lock	hold up until another tow enters the adjacent lock	tie off to the guide wall until the river is clear of traffic	hold in the lock chamber due to a malfunction with the gate	
3	2087	C	The Light List indicates that a light has a nominal range of 20 miles and is 52 feet (16 meters) high. If the visibility is 20 miles and your height of eye is 20 feet (6 meters), at what approximate distance will you sight the light?	33.0 nm	20.0 nm	13.5 nm	8.5 nm	
3	2088	D	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained by consulting the _____.	Sailing Directions	Light List Vol. V	U.S. Coast Pilot	Broadcast Notice to Mariners	
3	2089	B	Permission to leave the riverward chamber of twin locks is given by the lockmaster and consists of which sound signal?	One short blast	Two short blasts	One long blast	Two long blasts	
3	2090	A	You are underway in an area where the charted depth is 8 fathoms. You compute the height of tide to be -4.0 feet. The draft of your vessel is 5.0 feet (1.52 meters). You determine the depth of the water beneath your keel to be _____.	39 feet (11.9 meters)	43 feet (13.1 meters)	47 feet (14.3 meters)	57 feet (17.4 meters)	
3	2091	D	The velocity of the current in large coastal harbors is _____.	unpredictable	generally constant	generally too weak to be of concern	predicted in Tidal Current Tables	
3	2092	D	Descending boats, while awaiting their turn to enter a lock, shall NOT block traffic from the lock. They shall be above the lock by at LEAST _____.	100 feet	200 feet	300 feet	400 feet	
3	2093	C	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained from the _____.	Light List Vol. V	List of Lights	Broadcast Notice to Mariners	Sailing Directions	
3	2097	B	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained by consulting the _____.	Sailing Directions	Broadcast Notice to Mariners	Light List Vol. V	None of the above	
3	2098	C	Which magnetic compass corrector(s) can be set while the vessel is on a heading of magnetic east or magnetic west?	Quadrantal spheres	Heeling magnets	Fore-and-aft magnets	Athwartships magnets	

3	2100	C	You are underway in a vessel with a draft of 7.0 feet (2.1 meters). The charted depth for your position is 9 fathoms. You compute the height of tide to be +3.0 feet (0.9 meters). You determine the depth of the water beneath your keel to be _____.	32 feet (9.8 meters)	41 feet (12.6 meters)	50 feet (15.3 meters)	64 feet (19.6 meters)	
3	2101	A	Information about major breakdowns, repairs, or other emergency operations with regard to weirs and (or) wicket dams, on the western rivers, may be obtained by consulting the _____.	Broadcast Notice to Mariners	Light List Vol. V	U.S. Coast Pilot	All of the above	
3	2102	B	The subregions of the United States Gulf and East Coasts are numbered 11, 12 and 13 within the chart numbering system. Which chart number indicates a chart for either the Gulf or East Coast?	21214	11314	14313	14114	
3	2103	D	The description "Racon" beside an illustration on a chart would mean a _____.	radar calibration beacon	circular radio beacon	radar conspicuous beacon	radar transponder beacon	
3	2104	C	A white buoy marked with an orange rectangle indicates _____.	mid-channel	a fish net area	general information	an anchorage	
3	2110	B	You are underway in a vessel with a draft of 6.0 feet. You are in an area where the charted depth of the water is 4 fathoms. You would expect the depth of water beneath your keel to be approximately _____.	12 feet	18 feet	24 feet	30 feet	
3	2111	C	Vessels regularly navigating Ohio and Mississippi rivers above Cairo, Illinois, and their tributaries, shall at all times have on board a copy of _____.	Tide Tables	U.S. Coast Pilot	U.S. Army Corps of Engineers Navigation Regulations (Blue Book)	Sailing Directions	
3	2112	B	Vessels regularly navigating rivers above Cairo, Illinois, shall at all times have on board a copy of _____.	U.S. Coast Pilot	U.S. Army Corps of Engineers Regulations (Blue Book)	Nautical Almanac for the year	Light List Vol. V	
3	2113	A	Vessels regularly navigating rivers above Cairo, Illinois, shall at all times have on board a copy of _____.	U.S. Army Corps of Engineers Regulations (Blue Book)	Nautical Almanac for the year	Sailing Directions	Light List Vol. V	

3	2114	D	Vessels regularly navigating rivers above Cairo, Illinois, shall at all times have on board a copy of _____.	Sailing Directions	Nautical Almanac for the year	U.S. Coast Pilot	U.S. Army Corps of Engineers Regulations (Blue Book)	
3	2115	A	Vessels regularly navigating rivers above Cairo, Illinois, shall at all times have on board a copy of _____.	U.S. Army Corps of Engineers Regulations (Blue Book)	Light List Vol. V	U.S. Coast Pilot	None of the above	
3	2116	B	Vessels regularly navigating rivers above Cairo, Illinois, shall at all times have on board a copy of the _____.	Nautical Almanac for the year	U.S. Army Corps of Engineers Regulations (Blue Book)	Sailing Directions	All of the above	
3	2119	A	Which stock number indicates an NGA (NIMA) chart designed for fixing positions at sea and DR plotting while on a long voyage?	WOAGN520	PILOT16	16BCO16212	WOPZC5245	
3	2120	C	If a chart indicates the depth of water to be 6 fathoms and your draft is 6.0 feet, what is the depth of the water under your keel? (Assume the actual depth and charted depth to be the same)	6.0 feet	26.5 feet	30.0 feet	56.5 feet	
3	2121	C	In plotting a running fix, how many fixed objects are needed to take your lines of position from?	Three	Two	One	None	
3	2122	A	A position that is obtained by using two or more intersecting lines of position taken at nearly the same time, is a(n) _____.	fix	running fix	estimated position	dead-reckoning position	
3	2125	C	On charts of U.S. waters, a magenta marking is NOT used for marking a _____.	radio beacon	lighted buoy	5-fathom curve	prohibited area	
3	2126	C	Your chart indicates that there is an isolated rock and names the rock using vertical letters. This indicates the _____.	rock is visible at low water springs only	rock is a hazard to deep draft vessels only	rock is dry at high water	exact position of the rock is doubtful	
3	2130	D	You are underway and pass by a lighthouse. Its light, which was white since you first sighted it, changes to red. This means _____.	the light is characterized as alternately flashing	the lighthouse has lost power and has switched to emergency lighting	it is the identifying light characteristic of the lighthouse	you have entered an area of shoal water or other hazard	
3	2131	A	The white lights in a vertical line on a multiple-span bridge indicate _____.	the main channel	the draw span is inoperable	the river is obstructed under that span	scaffolding under the span is reducing the vertical clearance	
3	2132	C	What is the definition of height of tide?	The vertical difference between the heights of low and high water	The vertical difference between a datum plane and the ocean bottom	The vertical distance from the tidal datum to the level of the water at any time	The vertical distance from the surface of the water to the ocean floor	

3	2134	B	The Moon and Sun are in line over your meridian. Tomorrow when the Sun is over your meridian, the Moon will be _____.	over the meridian too	about 12°East of the meridian	about 6°West of the meridian	about 11° west of the meridian	
3	2140	D	The visible range marked on charts for lights is the _____.	minimum distance at which the light may be seen with infinite visibility	minimum distance at which the light may be seen based on a 12 mile distance to visible horizon	maximum distance the light may be seen restricted by the height of the light and the curvature of the earth	maximum distance at which a light may be seen in clear weather with 10 miles visibility	
3	2141	C	What lights would you see on the Illinois water way when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Red over green	Green over red	Red over amber (yellow)	Green over amber (yellow)	
3	2142	B	Which lights would you see on the Illinois waterway when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Green over amber (yellow)	Red over amber (yellow)	Red over blue	Green over red	
3	2143	A	What lights would you see on the Illinois water way when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Red over amber (yellow)	Green over amber (yellow)	Red over Green	Green over Red	
3	2144	A	Yesterday your chronometer read 02h 59m 58s at the 1500 GMT time tick. Today the chronometer reads 03h 00m 02s at the 1500 GMT time tick. What is the chronometer error?	02s fast	03h 00m 02s fast	+3s	-3s	
3	2145	D	What lights would you see on the Illinois water way when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Green over red	Red over blue	Green over amber (yellow)	Red over amber (yellow)	
3	2146	C	What lights would you see on the Illinois water way when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Green over red	Red over blue	Red over amber (yellow)	None of the above	

3	2147	B	What lights would you see on the Illinois waterway when any wickets of the dam or bear traps are open, or partially open, which may cause a set in the current conditions in the upper lock approach?	Green over blue	Red over amber (yellow)	Red over green	None of the above	
3	2150	C	On a Mercator chart, 1 nautical mile is equal to _____.	1 minute of longitude	1 degree of longitude	1 minute of latitude	1 degree of latitude	
3	2152	A	Permanent magnetism is found in _____.	hard iron	soft iron	vertical iron only	horizontal iron only	
3	2158	B	Permanent magnetism is caused by _____.	operation of electrical equipment and generators on board ship	the earth's magnetic field affecting the ship's hard iron during construction	the horizontal component of the earth's magnetic field acting on the horizontal soft iron	the vertical component of the earth's magnetic field acting on the vertical soft iron	
3	2159	B	Induced magnetism is found in _____.	hard iron	soft iron	vertical iron only	horizontal iron only	
3	2160	A	Information for updating nautical charts is primarily found in the _____.	Notice to Mariners	Coast Pilots	nautical chart catalogs	Sailing Directions	
3	2161	B	Yesterday your chronometer read 03h 01m 56s at the 1500 GMT time tick. Today your chronometer read 03h 01m 58s at the 1500 GMT time tick. What is the chronometer error?	03h 01m 58s fast	01m 58s fast	+2s	-2s	
3	2162	C	The new Moon cannot be seen because the Moon is _____.	in the opposite direction of the Sun	below the horizon	between the Earth and the Sun	at quadrature	
3	2164	B	The line connecting the points of the earth's surface where there is no dip is the _____.	agonic line	magnetic equator	isodynamic	isopor	
3	2165	A	The illustration represents a movable dam. If there is high water and the wickets are down so that there is an unobstructed navigable pass through the dam, what light(s) will be shown at B if the lock walls and piers are not awash?	Three red lights	Two red lights	One red light	One amber light	D037NG
3	2168	A	By convention, the north pole of a magnet is painted _____.	red	blue	white	black	
3	2169	A	To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at what time in relation to the predicted time of the favorable current?	30 minutes before the predicted time	One hour after the predicted time	At the predicted time	30 minutes before flood, one hour after ebb	
3	2170	C	The temperature at which the air is saturated with water vapor and below which condensation of water vapor will occur is referred to as the _____.	precipitation point	vapor point	dew point	absolute humidity	

3	2174	C	By convention, the Earth's north magnetic pole is colored _____.	red	white	blue	black	
3	2176	C	The illustration represents a movable dam. If there is high water and the wickets are down so that there is an unobstructed navigable pass through the dam, what light(s) will be shown at D if the lock walls and piers are not awash?	Three red lights	Two red lights	One red light	One amber light	D037NG
3	2177	D	This diagram represents a movable dam. If there is high water and the wickets are down so that there is an unobstructed navigable pass through the dam, what light(s) will be shown at D if the lock walls and piers are not awash?	One amber light	Three red lights	Two red lights	One red light	D037NG
3	2178	C	The Flinders bar and the quadrantal spheres should be tested for permanent magnetism at what interval?	They are not subject to permanent magnetism; no check is necessary.	Semiannually	Annually	Every five years	
3	2179	D	A vessel is heading magnetic northwest and its magnetic compass indicates a heading of 312°. The quadrantal spheres are arranged athwartships. What action should be taken to remove this error during compass adjustment?	If the quadrantal spheres are all of the way in, replace them with larger ones.	If the quadrantal spheres are all of the way out, remove one of the spheres.	If the quadrantal spheres are all of the way out, move the spheres in.	If the quadrantal spheres are all of the way out, replace them with smaller spheres.	D052NG
3	2180	C	Relative humidity is defined as _____.	the maximum vapor content the air is capable of holding	the minimum vapor content the air is capable of holding	the ratio of the actual vapor content at the current temperature to the air's vapor holding capability	the relation of the moisture content of the air to barometric pressure	
3	2184	A	By convention, the south seeking ends of a compass' magnets are colored _____.	blue	red	white	black	
3	2185	D	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic west but the compass reads 266°. What action should be taken?	Adjust the compass with the athwartships magnets until the compass reads 268°.	Adjust the compass with the fore-and-aft magnets until the compass reads 270°.	Adjust the compass with the quadrantal spheres until the compass reads 274°.	Adjust the compass with the fore-and-aft magnets until the compass reads 268°.	D052NG
3	2187	D	The diagram represents a movable dam. If there is high water and the wickets are down so that there is an unobstructed navigable pass through the dam, what light(s) will be shown at D if the lock walls and piers are not awash?	No lights	Three red lights	Two red lights	One red lights	D037NG

3	2188	A	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. What action should be taken to remove this error during compass adjustment?	If the red ends are to starboard the athwartships magnets should be lowered.	If the blue ends are forward the fore-and-aft magnets should be raised.	If the red ends are to starboard and the tray is at the top add some athwartships magnets.	If the blue ends are aft the fore-and-aft magnets should be raised.	D052NG
3	2189	D	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. What action should be taken to remove this error during compass adjustment?	If the blue ends are to port and the athwartships tray is at the bottom, you should add some more magnets.	If the blue ends are to port and the athwartships tray is at the top, you should add some more magnets.	If the red ends are to port, you should lower the athwartships tray.	If the red ends are to port and the tray is at the bottom, you should raise the tray.	D052NG
3	2190	C	Clouds are classified according to their _____.	size	moisture content	altitude and how they were formed	location in a front	
3	2191	D	The chart indicates the variation was 3°45'E in 1988, and the annual change is increasing 6'. If you use the chart in 1991 how much variation should you apply?	3°27'E	3°27'W	3°45'E	4°03'E	
3	2192	C	Off Fire Island, NY, with winds from the southwest, the average wind-driven current flows in a direction of _____.	256°	170°	076°	014°	
3	2195	C	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. What action should be taken to remove this error during compass adjustment?	If the red ends of the magnets are forward you should lower the fore-and-aft magnets.	If the blue ends of the magnets are forward you should lower the fore-and-aft magnets.	If the blue ends of the magnets are to port and the athwartships tray is at the bottom you should remove some of the magnets.	If the blue ends of the magnets are to port and the athwartships tray is at the top you should add some magnets.	D052NG
3	2198	D	Opposition occurs when _____.	the Sun, Earth, and Moon are at right angles	the Sun's declination is 0° and is moving south	an inferior planet is at the maximum angle to the line of sight to the Sun	the Earth is between a planet and the Sun	
3	2199	B	Denebola is found in what constellation?	Hydrus	Leo	Centaurus	Aquila	
3	2200	A	Cloud formations are minimal when the _____.	surface temperature and temperature aloft are equal	surface temperature and temperature aloft differ greatly	barometric pressure is very low	relative humidity is very high	

3	2203	B	You get underway from the shipyard in Chester, PA, at 1515 DST (ZD +4) on 6 August 1983, enroute to sea. You will be turning for eight knots. What current can you expect at Fourteen Foot Bank Light?	Slack	1.3 knots ebbing	1.7 knots ebbing	0.5 knot ebbing	
3	2207	C	Yesterday your chronometer read 11h 59m 58s at the 1200 GMT time tick. Today your chronometer reads 12h 00m 00s at the 1200 time tick. What is the chronometer rate?	Nil	12h	+2s	-2s	
3	2209	A	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic west but the compass reads 266°. You should now adjust the compass until it reads _____.	268°	270°	274°	Do not adjust the compass, just record the error.	
3	2210	A	A dead reckoning (DR) plot _____.	ignores the effect of surface currents	is most useful when in sight of land	must be plotted using magnetic courses	may be started at an assumed position	
3	2211	B	What is the length of a nautical mile?	1,850 meters	6,076 feet	5,280 feet	2,000 yards	
3	2212	D	Which information is found in the chart title?	Number of the chart	Edition date	Variation information	Survey information	
3	2214	D	By convention, the Earth's south magnetic pole is colored _____.	blue	black	white	red	
3	2215	D	You are required to enter a lock on your voyage. Information on the lock regulations, signals, and radio communications can be found in _____.	the publication "Key to the Locks"	Bowditch	Corps of Engineers Information Bulletin	Coast Pilot	
3	2217	B	A vessel is heading magnetic northwest and its magnetic compass indicates a heading of 317°. Quadrantal spheres re athwartships. What action should be taken to remove this error during compass adjustment?	Move the quadrantal spheres out.	Move the quadrantal spheres in.	If the spheres are in as far as possible replace them with smaller spheres.	If the spheres are out as far as possible replace them with smaller spheres.	D052NG
3	2220	D	A dead reckoning (DR) plot _____.	must utilize magnetic courses	must take set and drift into account	should be replotted hourly	should be started each time the vessel's position is fixed	
3	2221	A	A vessel is heading magnetic northwest and its magnetic compass indicates a heading of 317°. Quandrantal speheres are athwartships. What action should be taken to remove this error during compass adjustment?	If the quadrantal spheres are in as far as possible replace them with larger spheres.	If the quadrantal spheres are in as far as possible replace them with smaller spheres.	If the quadrantal spheres are in as far as possible move the quadrantal spheres out.	If the spheres are in as far as possible remove one of the spheres.	D052NG

3	2222	B	By convention, the south pole of a magnet is painted _____.	red	blue	white	black	
3	2223	B	A vessel is heading magnetic east and its magnetic compass indicates a heading of 093°. What action should be taken to remove this error during compass adjustment?	If the red ends of the magnets are aft you should lower the fore-and-aft tray.	If the red ends of the magnets are forward, and the fore-and-aft tray is at the bottom, you should remove some magnets.	If the red ends of the magnets are to port you should raise the athwartships tray.	If the red ends of the magnets are to port, and the athwartships tray is at the top, you should reverse the magnets.	D052NG
3	2224	C	By convention, the north seeking ends of a compass' magnets are colored _____.	black	blue	red	white	
3	2225	B	A vessel is heading magnetic north and its magnetic compass indicates a heading of 356°. What action should be taken to remove this error during compass adjustment?	If the blue ends of the magnets are to port, and the athwartships tray is at the top, you should remove some of the magnets.	If the blue ends of the magnets are to starboard, and the athwartships tray is at the bottom, you should remove some magnets.	If the red ends of the magnets are to starboard, and the athwartships tray is at the bottom, you should reverse the magnets.	If the blue ends of the magnets are to starboard, you should raise the athwartships tray.	D052NG
3	2226	B	Upper limb observations of the Moon are used more frequently than those of the Sun because of the location of the Moon in the sky and the _____.	lesser distance between the Earth and the Moon	phase of the Moon	rapid change in declination of the Moon	effects of augmentation and horizontal parallax	
3	2227	B	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic west but the compass reads 276°. What action should be taken?	Adjust the compass with the athwartships magnets until the compass reads 264°.	Adjust the compass with the fore-and-aft magnets until the compass reads 273°.	Adjust the compass with the quadrantal spheres until the compass reads 270°.	Adjust the compass with the athwartships magnets until the compass reads 273°.	D052NG
3	2228	C	You are enroute to assist vessel A. Vessel A is underway at 5 knots on course 063°T, and bears 136°T at 78 miles from you. What is the course to steer and running time at 13 knots to intercept vessel A?	115°, 5h 45m	158°, 7h 20m	115°, 7h 20m	158°, 5h 45m	
3	2229	A	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. What action should be taken to remove this error during compass adjustment?	If the red ends are to port the athwartships magnets should be raised.	If the blue ends are to port the athwartships magnets should be raised.	If the red ends are forward the fore-and-aft magnets should be lowered.	If the blue ends are forward the fore-and-aft magnets should be raised.	D052NG

3	2230	D	A nautical mile is a distance of approximately how much greater than or less than a statute mile?	1/4 less	1/7 less	1/4 greater	1/7 greater	
3	2231	B	You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course 033°T, and bears 284°T at 43 miles from you. What is the course to steer and running time at 16 knots to intercept vessel A?	265°, 3h 13m	303°, 2h 32m	265°, 2h 32m	303°, 3h 13m	
3	2232	B	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. Which action should be taken to remove this error during compass adjustment?	If the red ends are to starboard you should raise the athwartships tray.	If the red ends are to starboard, and the athwartships tray is at the bottom, you should remove some magnets.	If the red ends are to port, and the athwartships tray is at the top, you should reverse the magnets.	If the red ends are to port, and the athwartships tray is at the top, you should lower the tray.	D052NG
3	2233	D	You are outbound in a channel marked by a range astern. The range line is 133°T. You are steering 315°T and have the range in sight as shown. What action should you take?	Come left to 313°T.	Come right until the range comes in line then alter course to 313°T.	Come right until the range comes in line then alter course to 317°T.	Come left to close the range then when on the range steer 313°T.	D048NG
3	2234	D	A vessel is heading magnetic north and its magnetic compass indicates a heading of 003°. What action should be taken to remove this error during compass adjustment?	Move the quadrantal spheres closer to the compass	Raise the heeling magnet if the red end is up	Remove some of the Flinders bar	Raise or lower the athwartship magnets	D052NG
3	2235	A	You are outbound in a channel marked by a range astern. The range line is 273° T. You are steering 090° T and have the range in sight as shown. What action should you take?	Come right to close the range then when on the range steer 093° T.	Come left until the range comes in line than alter course to 093° T.	Come left until the range comes in line then alter course to 087° T.	Come right to 093° T.	D047NG
3	2236	D	Which is TRUE of a downbound power-driven vessel, when meeting an upbound vessel on the Western Rivers?	She has the right of way.	She shall propose the manner of passage.	She shall initiate the maneuvering signals.	All of the above	
3	2239	A	A flashing green light displayed at a single lock means that the lock is _____.	ready for entrance	ready for entrance, but gates cannot be closed completely	being made ready for entrance	not ready for entrance	
3	2240	D	If you observe a buoy off station you should _____.	fill out and mail CG Form 2692 to the nearest Coast Guard office	appear in person at the nearest Coast Guard office	notify Coast Guard Headquarters in Washington, DC	immediately contact the nearest Coast Guard office by radiotelephone	

3	2242	A	A vessel is heading magnetic north and its magnetic compass indicates a heading of 356°. Which action should be taken to remove this error during compass adjustment?	If the red ends of the magnets are to port you should lower the athwartships tray.	If the red ends of the magnets are aft you should raise the fore-and-aft tray.	If the blue ends of the magnets are to port, and the athwartships tray is at the top, you should remove some of the magnets.	If the blue ends of the magnets are aft you should raise the fore-and-aft tray.	D052NG
3	2243	C	Which aid is NOT marked on a chart with a magenta circle?	Radar station	Radar transponder beacon	Aero light	Radio beacon	
3	2244	B	Capella is found in what constellation?	Gemini	Auriga	Libra	Crab	
3	2245	C	A vessel is heading magnetic northwest and its magnetic compass indicates a heading of 312°. Quadrantal spheres are amidships. What action should be taken to remove this error during compass adjustment?	If the quadrantal spheres are all of the way out replace them with larger spheres.	If the quadrantal spheres are all of the way in replace them with larger spheres.	If the quadrantal spheres are all of the way in, move the spheres out.	If the quadrantal spheres are all of the way out, move the spheres in.	D052NG
3	2246	A	The speed of an ocean current is dependent on _____.	the density of the water	the air temperature	the presence of a high pressure area near it	underwater soil conditions	
3	2249	D	A vessel is heading magnetic north and its magnetic compass indicates a heading of 356°. What action should be taken to remove this error during compass adjustment?	If the red ends of the magnets are to port you should raise the athwartships tray.	If the red ends of the magnets are to port, and the athwartships tray is at the top, you should add some more magnets.	If the red ends of the magnets are to starboard you should lower the athwartships tray.	If the red ends of the magnets are to starboard, and the athwartships tray is at the top, you should add some more magnets.	D052NG
3	2250	C	The most important information to be obtained from a barometer is the _____.	difference between the reading of the two pointers, which shows wind direction	last two figures of the reading of the pointer, such as .87, .76, or .92	present reading of the pressure, combined with the changes in pressure observed in the recent past	weather indications printed on the dial (such as "cold, wet, etc.") under the pointer	
3	2251	C	Which statement concerning the chartlet shown is TRUE? (Soundings and heights are in meters)	Maury lightship is visible for 17 miles.	The bottom to the south-southeast of the lightship is soft coral.	There is a dangerous eddy southeast of Beito Island.	There is a 12-meter deep west of Beito Island and inside the 5-meter line.	D010NG
3	2252	D	The vertical angle between the horizontal and the magnetic line of force is the _____.	elevation	magnetic angle	vertical angle	dip	

3	2254	A	A rock and sand structure extending from the bank of the river toward the channel is known as a _____.	wingdam	towhead	cutoff	landwall	
3	2255	D	The height of tide is the _____.	depth of water at a specific time due to tidal effect	difference between the depth of the water at high tide and the depth of the water at low tide	difference between the depth of the water and the high water tidal level	difference between the depth of the water and the area's tidal datum	
3	2256	C	The constellation that contains Polaris is _____.	Orion	Cassiopeia	Ursa Minor	Corona Borealis	
3	2257	D	A vessel is heading magnetic northwest and its magnetic compass indicates a heading of 317°. Quadrantal spheres are athwartships. What action should be taken to remove this error during compass adjustment?	If the quadrantal spheres are out as far as possible replace them with smaller spheres.	If the quadrantal spheres are in as far as possible remove one of the spheres.	If the quadrantal spheres are in as far as possible replace them with smaller spheres.	If the quadrantal spheres are out as far as possible, move the quadrantal spheres in.	D052NG
3	2258	D	The primary use of apparent time in marine navigation is to _____.	calculate sunrise or sunset	determine zone time	enter an almanac	determine the time of meridian transit	
3	2261	D	You determine your vessel's position by taking a range and bearing to a buoy. Your position will be plotted as a(n) _____.	running fix	fix	dead-reckoning position	estimated position	
3	2262	B	The Milky Way is an example of a _____.	cluster	galaxy	nova	nebula	
3	2264	B	The revision date of a chart is printed on which area of the chart?	Top center	Lower-left corner	Part of the chart title	Any clear area around the neat line	
3	2266	D	It is difficult to determine which limb of the Moon is fully illuminated _____.	when the Moon is low in the sky at rising or setting	at the new Moon phase	when taking Moon sights during daylight	when the terminator is nearly vertical	
3	2268	D	What condition exists at perigee?	The Earth is farthest from the Sun.	The Earth, Sun, and Moon are in line.	The Earth, Sun, and Moon are at right angles.	The Moon is closest to the Earth.	
3	2270	B	The lubber's line of a magnetic compass _____.	always shows true north direction	indicates the vessel's heading	is always parallel to the vessel's transom	is located on the compass card	
3	2271	B	What is the definition of height of tide?	The vertical distance from the surface of the water to the ocean floor	The vertical distance from the tidal datum to the level of the water at any time	The vertical difference between a datum plane and the ocean bottom	The vertical difference between the heights of low and high water	
3	2272	C	Mars will not be visible _____.	at elongation angles near 180°	from quadrature to opposition	at conjunction	at opposition	

3	2276	A	A vessel is heading magnetic east and its magnetic compass indicates a heading of 086°. Which action should be taken to remove this error during compass adjustment?	If the blue ends of the magnets are aft, and the fore-and-aft tray is at the top, you should add some magnets.	If the blue ends of the magnets are aft you should lower the fore-and-aft tray.	If the blue ends of the magnets are aft, and the fore-and-aft tray is at the top, you should reverse the magnets.	If the blue ends of the magnets are forward, and the fore-and-aft tray is at the bottom, you should add some magnets.	D052NG
3	2277	C	The Light List indicates that a light has a nominal range of 20 miles and is 52 feet high. If the visibility is 12.0 miles and your height of eye is 20 feet, at what approximate distance will you sight the light?	21.5 miles	20.0 miles	13.7 miles	12.0 miles	
3	2278	C	Superior conjunction occurs when _____.	the Sun is at maximum declination north or south	a planet crosses the external plane of the ecliptic	the Sun is between the Earth and a planet	two planets are in line	
3	2279	A	Antares is found in what constellation?	Scorpio	Corvus	Libra	Corona Borealis	
3	2280	D	Which would influence a magnetic compass?	Electrical wiring	Iron pipe	Radio	All of the above	
3	2282	C	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic west but the compass reads 276°. You should now adjust the compass until it reads _____.	264°	270°	273°	Do not adjust the compass, just record the error.	
3	2284	D	Bellatrix is found in what constellation?	Canis Minor	Gemini	Taurus	Orion	
3	2286	D	Which light signal indicates that you have permission to enter a lock on the Ohio River?	Steady red	Flashing amber	Steady green	Flashing green	
3	2288	B	A mean sun is used as the reference for solar time for three reasons. Which reason is NOT a cause for use of a mean sun?	The motion of the apparent sun is along the ecliptic.	Measurement of time is along the celestial equator.	The speed of the Earth's revolution is not constant.	There are variations in the Earth's rotational speed.	
3	2289	B	The constellation that contains the pointer stars is _____.	Orion	Ursa Major	the Southern Cross	Pegasus	
3	2290	A	Magnets in the binnacles of magnetic compasses are used to reduce the effect of _____.	deviation	variation	local attraction	All of the above	
3	2292	D	The points on the earth's surface where the magnetic dip is 90° are _____.	along the magnetic equator	connected by the isoclinal line	the isopors	the magnetic poles	
3	2294	D	What celestial body may sometimes be observed in daylight?	New Moon	Saturn	Sirius	Venus	
3	2296	A	A variable star is one that _____.	exhibits a change in magnitude	has a changing declination	is increasing in SHA	is also known as a red giant	

3	2298	C	The period of rotation of the Moon on its axis is _____.	about 19 years	365 days	about 27.3 days	24 hours	
3	2299	C	What condition exists at apogee?	The Earth is closest to the Sun.	The Moon is farthest from the Sun.	The Earth is farthest from the Moon.	The Moon is between the Earth and the Sun.	
3	2300	A	When a magnetic compass is not in use for a prolonged period of time it should _____.	be shielded from direct sunlight	be locked into a constant heading	have any air bubbles replaced with nitrogen	have the compensating magnets removed	
3	2304	C	The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?	Libration in longitude	Diurnal libration	Vertical libration	Libration in latitude	
3	2306	A	In the North Sea area, you sight a buoy showing a quick white light with 9 flashes every 15 seconds. Which of the four topmarks shown would be fitted to the buoy?	A	B	C	D	D031NG
3	2308	B	The points where the Sun is at 0° declination are known as _____.	solstices	equinoxes	perigee	apogee	
3	2309	B	The plane of the ecliptic is inclined to the plane of the celestial equator by what angle?	00°23'	23°27'	45°00'	90°00'	
3	2310	D	Which weather instrument measures atmospheric pressure?	Beaufort scale	Anemometer	Sling psychrometer	Barometer	
3	2312	A	Mars is only seen at two phases, one of which _____.	is the full phase	is conjunction	occurs only at sunset or sunrise	occurs at or near 0° elongation	
3	2315	C	A vessel is heading magnetic east and its magnetic compass indicates a heading of 086°. What action should be taken to remove this error during compass adjustment? (See Illustration D052NG)	If the blue ends of the magnets are forward you should raise the fore-and-aft tray.	If the blue ends of the magnets are aft you should lower the fore-and-aft tray.	If the blue ends of the magnets are aft, and the fore-and-aft tray is at the top, you should add some magnets.	If the blue ends of the magnets are aft, and the fore-and-aft tray is at the bottom, you should reverse the magnets.	D052NG
3	2316	D	Elongation becomes zero at _____.	opposition	west quadrature	apogee	inferior conjunction	
3	2317	A	The Light List indicates that a light has a nominal range of 13 miles and is 36 feet high (11.0 meters). If the visibility is 7.0 miles and your height of eye is 25 feet (7.6 meters), at what approximate distance will you sight the light?	10.0 miles	12.9 miles	14.2 miles	17.0 miles	
3	2318	D	Miaplacidus is found in what constellation?	Puppis	Hydrus	Centaurus	Carina	
3	2319	A	In low latitudes, the new Moon will always rise at about _____.	sunrise	1200 LMT	sunset	2400 LMT	

3	2320	C	The type of current which will have the greatest effect on the course made good for your vessel is _____.	one flowing in the same direction as your course steered	one flowing in the opposite direction as your course steered	one that flows at nearly right angles to your course steered	a rotary current in which the direction of current flow constantly changes	
3	2322	B	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic north but the compass reads 356°. Which action should be taken?	Use the fore-and-aft magnets and adjust the compass until it reads 358°.	Use the athwartships magnets and adjust the compass until it reads 358°.	Use the fore-and-aft magnets and adjust the compass until it reads 000°.	Use the quadrantal spheres and adjust the compass until it reads 000°.	D052NG
3	2324	A	Deneb is found in what constellation?	Cygnus	Pegasus	Ursa Major	Andromeda	
3	2326	B	A double star is a star that _____.	has a declination equal to twice that of the Sun	comprises two stars that appear close together	is twice as bright as a single star	suddenly becomes much brighter and then fades	
3	2328	B	Universal time (UTI) is another name for _____.	sidereal time	Greenwich mean time	ephemeris time	atomic time	
3	2329	D	In low latitudes, a last quarter moon will always rise at about _____.	sunrise	1200 LMT	sunset	2400 LMT	
3	2330	A	You are heading in a northerly direction when you come across an easterly current. Your vessel will _____.	be pushed to starboard	be pushed to port	decrease in engine speed	remain on course	
3	2332	C	Magnetic dip is a measurement of the angle between the _____.	geographic pole and the magnetic pole	lubber's line and true north	horizontal and the magnetic line of force	compass heading and the magnetic heading	
3	2334	C	Other than the Sun and Moon, the brightest object in the sky is _____.	Sirius	Canopus	Venus	Jupiter	
3	2335	B	The Light List indicates that a light has a nominal range of 13 miles and is 36 feet high. If the visibility is 17 miles and your height of eye is 25 feet, at what approximate distance will you sight the light?	10.0 miles	12.9 miles	14.2 miles	17.0 miles	
3	2336	B	The period of revolution of the Moon is _____.	24 hours	about 27.3 days	365 days	about 19 years	
3	2338	C	A group of stars which appear close together and form a striking configuration such as a person or animal is a _____.	cluster	shower	constellation	galaxy	

3	2340	C	What is a "Special Warning"?	An urgent message concerning a vessel in distress	A weather advisory about unusual meteorological or oceanographic phenomena hazardous to vessels	A broadcast disseminating an official government proclamation affecting shipping	A radio navigational warning concerning a particularly hazardous condition affecting navigation	
3	2342	A	What happens because of augmentation?	The Moon appears larger as the elevation increases.	The Sun appears larger when viewed against the darker background of the horizon.	The horizon appears elevated when observing a bright Sun or Moon at low altitudes.	The Moon appears larger at the full Moon.	
3	2344	D	The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?	Libration in latitude	Diurnal libration	Physical libration	Horizontal libration	
3	2345	D	You should plot your dead reckoning position _____.	from every estimated position	every three minutes in pilotage waters	only in pilotage waters	from every fix or running fix	
3	2346	C	The first point of Aries is the point where the Sun is at _____.	maximum declination north	maximum declination south	0° declination going to northerly declinations	0° declination going to southerly declinations	
3	2348	B	Under the IALA cardinal system, a mark with a quick light showing 9 flashes every 15 seconds indicates that the safest water is on the _____.	north side of the mark	west side of the mark	east side of the mark	south side of the mark	
3	2349	A	The summer solstice is the point where the Sun is at _____.	maximum declination north	maximum declination south	0° declination going to northerly declinations	0° declination going to southerly declinations	
3	2350	A	The principal advantage of NAVTEX radio warnings is that _____.	they can be used by mariners who do not know Morse code	only an ordinary FM radio is necessary to receive these warnings	information on a given topic is only broadcast at specified times	they cover a broad spectrum of the radio band allowing reception on almost any type of receiver	
3	2351	D	A position obtained by applying ONLY your vessel's course and speed to a known position is a _____.	running fix	probable position	fix	dead-reckoning position	
3	2352	C	When a superior planet is at 90° elongation, it is also at _____.	conjunction	opposition	quadrature	transit	
3	2353	A	A single line of position combined with a dead-reckoning position results in a(n) _____.	estimated position	assumed position	fix	running fix	

3	2354	D	A vessel is heading magnetic east and its magnetic compass indicates a heading of 093°. What action should be taken to remove this error during compass adjustment?	If the blue ends of the magnets are to port you should raise the athwartships tray.	If the red ends of magnets are to port you should lower the athwartships tray.	If the red ends of the magnets are aft you should lower the fore-and-aft tray.	If the blue ends of the magnets are forward you should raise the fore-and-aft tray.	D052NG
3	2356	A	As observed from the Earth, the angle between lines from the Earth to the Sun and the Earth to an inferior planet is known as _____.	elongation	conjunction	opposition	quadrature	
3	2358	C	Altair is found in what constellation?	Hercules	Cygnus	Aquila	Capricorn	
3	2360	D	What U.S. agency is responsible for NAVAREA warnings?	Coast Guard	National Oceanic and Atmospheric Administration	National Ocean Service	National Geospatial-Intelligence Agency	
3	2361	D	The range of tide is the _____.	maximum depth of the water at high tide	duration of time between high and low tide	distance the tide moves out from the shore	difference between the heights of high and low tide	
3	2362	C	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic north but the compass reads 004°. Which action should be taken?	Use the Flinders bar and adjust the compass until it reads 002°.	Use the fore-and-aft magnets and adjust the compass until it reads 000°.	Use the athwartships magnets and adjust the compass until it reads 002°.	Use the athwartships magnets and adjust the compass until it reads 000°.	D052NG
3	2363	C	As shown, the position labeled C was plotted because _____.	the vessel's speed changed	the vessel's course changed form due North to due East	running fixes are better estimates of true position than dead-reckoning positions	All of the above are correct	D051NG
3	2364	D	The immediate surroundings of what constellation contain the most first magnitude stars?	Libra	Cassiopeia	Pegasus	Orion	
3	2366	B	The major problem with Moon sights is the _____.	rapid changes in GHA and declination introduce errors into the calculations	lack of a well defined limb during certain phases and positions in the sky	approximations used in the solution caused by the variable horizontal parallax	augmentation effect caused by the relatively short distance to the Moon	
3	2369	A	Which magnetic compass corrector(s) CANNOT be set on a heading of magnetic east or magnetic west?	Heeling magnet	Flinders bar	Fore-and-aft magnets	All of the above can be set on magnetic east or magnetic west headings.	D052NG
3	2370	A	In the United States, short-range radio navigational warnings are broadcast by the _____.	Coast Guard	Corps of Engineers	NOAA	harbor master of the nearest port	

3	2372	C	In the North Sea area, you sight a buoy showing a quick white light showing 6 flashes followed by one long flash at 15 second intervals. Which of the four topmarks illustrated in diagram D031NG would be fitted to this buoy?	A	B	C	D	D031NG
3	2373	D	The vertical distance from the tidal datum to the level of the water is the _____.	actual water depth	range of tide	charted depth	height of tide	
3	2374	C	The largest of the navigational planets is _____.	Mars	Venus	Jupiter	Saturn	
3	2375	B	The shortest distance between any two points on earth defines a _____.	small circle	great circle	rhumb line	hyperbola	
3	2376	D	A large group of stars revolving around a center is known as a _____.	cluster	shower	constellation	galaxy	
3	2378	B	Which light signal indicates that you may approach the lock?	Flashing red	Flashing amber	Steady amber	Steady green	
3	2379	B	The winter solstice is the point where the Sun is at _____.	maximum declination north	maximum declination south	0° declination going to northerly declinations	0° declination going to southerly declinations	
3	2380	D	The navigation regulations applicable to a U.S. inland waterway can be found in the _____.	Notices to Mariners	Channel Reports	Sailing Directions	Coast Pilots	
3	2381	D	The difference between the heights of low and high tide is the _____.	period	distance	depth	range	
3	2382	B	What causes geocentric parallax?	The varying distance between the Earth and Moon.	The change in the Moon's position relative to the stars when viewed from the Earth's surface, as compared to the Earth's center.	The rapid change in declination of the Moon causes a rotational oscillation of its axis.	The nearness of the Moon causes an apparent increase in diameter as its altitude increases.	
3	2384	B	On U.S. charts, you can tell if a named feature such as a rock (i.e. Great Eastern Rock in Block Island Sound) is submerged by the _____.	color of ink used to print the name	style of type used to print the name	dashed circle around the feature	magenta circle around the feature	
3	2386	C	The path that the Sun appears to take among the stars is the _____.	zodiac	Tropic of Cancer in the Northern Hemisphere	ecliptic	line of apsides	
3	2387	D	You are on a voyage from New Orleans to Boston and navigating off the Florida coast. You will get the greatest benefit from the Gulf Stream if you navigate _____.	about 5 miles east of Cape Canaveral	about 15 miles east of Daytona	along the 50-fathom curve	about 20 miles east of Jupiter Inlet	

3	2388	D	The reference point for determination of GMT is the passage of the mean sun over what line?	First point of Aries	Observer's meridian	0° longitude	180° longitude	
3	2389	D	The autumnal equinox is the point where the Sun is at _____.	maximum declination north	maximum declination south	0° declination going to northerly declinations	0° declination going to southerly declinations	
3	2390	A	You are in a channel in U.S. waters near an industrial plant with a load/discharge facility for barges. You hear a siren being sounded at the facility. What does this indicate?	There is danger at the facility due to a fire or cargo release.	A towboat with a hazardous cargo barge is being moved to or from the facility.	The facility is warning a barge to shut down transfer operations due to weather conditions (electrical storms, tornado, etc.).	A barge at the facility has commenced loading or discharging operations.	
3	2392	D	The point where the Sun is at maximum declination north or south is _____.	aphelion	perihelion	an equinox	a solstice	
3	2395	C	A vessel is heading magnetic east and its magnetic compass indicates a heading of 093°. What action should be taken to remove this error during compass adjustment?	If the red ends of the magnets are aft, and the fore-and-aft tray is at the top, you should remove some magnets.	If the red ends of the magnet are aft, and the fore-and-aft tray is at the bottom, you should reverse the magnets.	If the red ends of the magnets are aft you should raise the fore-and-aft tray.	If the blue ends of the magnets are forward you should remove some magnets from the fore-and-aft tray.	D052NG
3	2396	A	Perihelion is the point where the Sun _____.	is nearest to the Earth	is farthest from the Earth	is on the opposite side of the Earth from the Moon	and Moon and Earth are in line	
3	2399	D	Which statement about the time diagram shown is TRUE?	The Greenwich date is one day later than your date.	The diagram is valid only if you are in the southern hemisphere.	The LHA of the Sun is approximately 40°.	The diagram represents a morning Sun sight.	D008NG
3	2400	D	You are in a channel in U.S. waters near an industrial plant with a load/discharge facility for barges. You see an emergency rotating flashing light on the facility light up. What does this indicate?	A barge at the facility has commenced transferring a hazardous cargo.	A barge carrying a hazardous cargo is mooring or unmooring at the facility.	The facility is warning a barge to shut down transfer operations due to weather conditions (electrical storm, tornado, hurricane, etc.).	There is danger at the facility due to a fire or cargo release.	

3	2402	A	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic north but the compass reads 356°. You should now adjust the compass until it reads _____.	358°	000°	002°	004°	
3	2404	B	The dividing meridian between zone descriptions +7 and +8 is _____.	105°00'W	112°30'W	117°00'W	120°30'W	
3	2406	A	The dividing meridian between zone descriptions +4 and +5 is _____.	67°30'W	90°00'W	67°30'E	75°00'E	
3	2408	D	What is the equivalent of 42 min. 48 sec. in arc units?	21°24'	18°16'	11°19'	10°42'	
3	2409	D	You are approaching the first of two drawbridges that span a narrow channel. The second drawbridge is close to the first. Which signals should you sound?	Sound the request-for-opening signal for the first bridge only, who will notify the second bridge of your approach	Sound the request-for-opening signal twice in succession to indicate you must pass through both bridges	Sound the request-for-opening signal, pause for about 10 seconds, then sound two prolonged blasts.	Sound the request-for-opening signal and, after the bridge acknowledges it, sound the request-for-opening signal for the second bridge.	
3	2410	B	A facility used for the discharge of a cargo of a particular hazard, such as chlorine, butane or ethane, must have what to warn water traffic of an immediate danger during fire or cargo release?	An emergency boat and crew	A siren or rotating flashing light	Flashing red lights located one-half mile upstream and downstream of the facility	Buoys with flashing lights controlled from shore, located one-half mile upstream and downstream of the facility	
3	2412	B	The permanent magnetism of a vessel may change in polarity due to _____.	being moored for a long time on one heading	being struck by lighting	steaming from the north magnetic hemisphere to the south magnetic hemisphere	loading a homogenous magnetic cargo such as steel plate, iron bars, etc.	
3	2416	B	An orange and white buoy indicating a vessel-exclusion area will be marked with what symbol?	Open-faced diamond	Diamond with a cross	Circle	Square	
3	2418	B	While proceeding downriver, you sight a red triangular-shaped daymark on the left bank. Under the U.S. Aids to Navigation System on the Western Rivers this is a _____.	special purpose signal	passing daymark	mark with no lateral significance	crossing daymark	
3	2419	C	A backlash below a lock is defined as a _____.	current setting your vessel on the wall	current setting into the lock chamber	an eddy working along the lower guide wall	current setting counterclockwise	

3	2420	D	You are on course 355°T and take a relative bearing of a lighthouse of 275°. What is the true bearing of the lighthouse?	080°	085°	280°	270°	
3	2422	B	The dimmest stars that could be reasonably used for navigational purposes are of what magnitude?	First	Third	Sixth	Tenth	
3	2423	B	IN REGION A of the IALA Buoyage System, when entering from seaward, the starboard side of a channel would be marked by a _____.	red conical buoy	green conical buoy	red can buoy	green can buoy	
3	2424	A	Under the IALA-B Buoyage System, when entering from seaward a lateral system buoy to be left to starboard may display which of the topmarks shown?	A	B	C	D	D046NG
3	2425	A	A vessel's position should be plotted using bearings of _____.	fixed objects on shore	buoys at a distance	buoys close by	All of the above	
3	2426	D	You are in charge of a power-driven vessel crossing a river on the Western Rivers. You must keep out of the way of _____.	a sail vessel descending the river	a power-driven vessel ascending the river	a vessel restricted in its ability to maneuver crossing the river	All of the above	
3	2428	A	If your vessel were proceeding up river (ascending), the port side of the channel would be marked according to the U. S. Aids to Navigation System on the Western Rivers by _____.	green can buoys	red can buoys	green nun buoys	red nun buoys	
3	2429	D	The lock chamber is 600 feet X 110 feet. Your towboat is 150 feet X 35 feet. Which of these tows will require a double lockage?	A set-over single	4 standard barges abreast next to your boat's head and 3 jumbo abreast in the lead	6 jumbo (3 abreast and 2 long) with a standard on each side of your boat	9 jumbo barges	
3	2430	B	You are on course 222°T and take a relative bearing of a lighthouse of 025°. What is the true bearing to the lighthouse?	197°	247°	315°	335°	
3	2432	A	A time diagram is a diagram of the celestial sphere as observed from above the _____.	south celestial pole	north celestial pole	observer's meridian	Greenwich meridian	
3	2435	D	What is a lighted safe water mark fitted with to aid in its identification?	A red and white octagon	Red and white retroreflective material	A sequential number	A spherical topmark	
3	2436	D	Aphelion is the point where the Sun _____.	and Moon and Earth form a right angle	and Moon and Earth are in line	crosses the celestial equator	is farthest from the Earth	

3	2437	C	When daylight savings time is kept, the times of tide and current calculations must be adjusted. One way of doing this is to _____.	add 15° to the standard meridian when calculating the time differences	apply no correction as the times at the reference stations are adjusted for daylight savings time	add one hour to the times listed for the reference stations	subtract one hour from the times listed for the subordinate stations	
3	2438	A	The radar control that reduces weak echoes out to a limited distance from the ship is the _____.	sensitivity time control (sea-clutter control)	receiver gain control	brilliance control	fast time constant (differentiator)	
3	2439	A	Which statement about the time diagram in illustration D008NG is TRUE?	You are in east longitude.	The Sun is setting for you.	Your date is different from the Greenwich date.	The GHA is approximately 160°.	D008NG
3	2440	C	You are on course 357°T and take a relative bearing of a lighthouse of 180°. What is the true bearing to the lighthouse?	003°	227°	177°	363°	
3	2442	D	You have completed the magnetic compass adjustments on magnetic east and magnetic south. The vessel is now steady on magnetic north but the compass reads 004°. You should now adjust the compass until it reads _____.	356°	358°	000°	002°	
3	2444	D	What is the equivalent of 0°48' in time units?	2 min. 12 sec.	2 min. 42 sec.	3 min. 02 sec.	3 min. 12 sec.	
3	2446	B	What is the equivalent of 47 min. 20 sec. in arc units?	8°27'	11°50'	13°42'	13°56'	
3	2448	D	What is the equivalent of 37 min. 32 sec. in arc units?	4°47'	6°38'	7°41'	9°23'	
3	2450	A	You are on course 180°T and take a relative bearing of a lighthouse of 225°. What is the true bearing of the lighthouse?	045°	135°	180°	270°	
3	2452	C	The permanent magnetism of a vessel may change in strength due to _____.	the nature of the cargo being carried	changes in heading	major structural repair	All of the above	
3	2456	C	An orange and white buoy marking an area where operating restrictions are in effect will be marked with which symbol?	Open-faced diamond	Diamond with a cross	Circle	Rectangle	
3	2458	B	In the U.S. Aids to Navigation System on the Western Rivers, the light characteristic of group flashing (2) is used for lights on _____.	the right descending bank	the left descending bank	preferred channel buoys	daymarks with no lateral significant	

3	2459	D	The controlling depth of the river is _____.	the minimum depth of the river prescribed in the channel maintenance program	the edge of a dredged channel	the highest level to which the river may rise without flooding	the least available water in a channel which limits the draft of boats and tows	
3	2460	D	You are on course 344°T and take a relative bearing of a lighthouse of 270°. What is the true bearing to the lighthouse?	016°	074°	090°	254°	
3	2462	D	Under ideal viewing conditions, the dimmest star that can be seen with the unaided eye is of what magnitude?	First	Third	Fourth	Sixth	
3	2464	B	Under the IALA-A Buoyage System, when entering from seaward a lateral system buoy to be left to port may display which topmark shown?	A	B	C	D	D046NG
3	2466	C	On the Western Rivers, a vessel crossing a river must _____.	only keep out of the way of a power-driven vessel descending the river	keep out of the way of any vessel descending the river	keep out of the way of a power-driven vessel ascending or descending the river	keep out of the way of any vessel ascending or descending the river	
3	2468	B	Under the U.S. Aids to Navigation System on the Western Rivers, the buoys marking the starboard side of the channel when going upstream will be _____.	black	red	green	yellow	
3	2469	D	A tow that is properly aligned to pass through a narrow opening between two bridge piers is "_____".	on course	headed fair	holding on	in shape	
3	2470	B	You are on course 344°T and take a relative bearing of a lighthouse of 090°. What is the true bearing to the lighthouse?	016°	074°	254°	270°	
3	2472	D	The Sun is closest to the Earth in what month?	October	July	April	January	
3	2476	C	At meridian transit, the diagram used by a navigator to illustrate the angles involved is based on the _____.	celestial equator as observed from above the south celestial pole	celestial equator as observed from above the north celestial pole	plane of the observer's meridian	plane of the Greenwich meridian	
3	2479	D	The equation of time measures the _____.	difference between local apparent time and Greenwich apparent time	longitude in time units	difference between sidereal time and local time at the Greenwich meridian	time between the passage of the mean sun and the apparent sun over a meridian	

3	2480	D	You are on course 277°T and take a relative bearing of a lighthouse of 045°. What is the true bearing to the lighthouse?	038°	232°	315°	322°	
3	2481	C	The letter D as shown represents the _____.	celestial horizon	sensible horizon	geometrical horizon	visible horizon	D006NG
3	2482	B	When a vessel changes course from one cardinal heading to another cardinal heading while adjusting the compass, which action should be taken?	The course change should be made rapidly to prevent transient induced magnetism while passing the intercardinal headings.	After the new heading is reached, the vessel should steam on that course for at least two minutes before the adjustment.	During the course change, you should gently tap the compass to remove any error caused by friction on the pivot bearing.	After steadying on the new heading, the compass card should be slewed by a magnet and allowed to oscillate freely to remove any gaussin error.	
3	2483	A	A white buoy with an orange rectangle on it is used to indicate _____.	general information	an exclusion area	danger	a controlled area	
3	2484	D	What is the equivalent of 1°53' in time units?	3 min. 16 sec.	5 min. 28 sec.	6 min. 43 sec.	7 min. 32 sec.	
3	2486	D	What is the equivalent of 23 min. 20 sec. in arc units?	16°40'	12°32'	9°28'	5°50'	
3	2488	B	In which publication could you find information concerning the minimum lighting required for bridges on U.S. waters?	Chart No. 1.	Code of Federal Regulations	Mississippi River Systems Light List	Notice to Mariners	
3	2489	A	You are approaching a drawbridge and must pass through during a scheduled closure period. What signal should you sound?	Five short blasts	Two prolonged, two short blasts	Three prolonged blasts	Three short blasts, two prolonged blasts	
3	2490	D	A vertex of the navigational triangle is NOT located at the _____.	elevated pole	celestial body	zenith	coaltitude	
3	2492	C	A star that suddenly becomes several magnitudes brighter and then gradually fades is a _____.	double star	variable star	nova	nebula	
3	2496	A	An orange and white buoy marking a danger area will have what symbol on it?	Open-faced diamond	Diamond with a cross	Circle	Square	
3	2498	A	The light characteristic of flashing is used in the Aids to Navigation System on the Western Rivers for lights on _____.	the right descending bank	the left descending bank	preferred channel buoys	daymarks with no lateral significance	
3	2499	A	The "head of the bend" is the _____.	top or upstream beginning of a bend	bottom or downstream beginning of a bend	midpoint or center radius of a bend	center line or apex of a bend	
3	2500	A	When correcting the sextant altitude to apparent altitude you are correcting for inaccuracies in the reading and _____.	for inaccuracies in the reference level	the equivalent reading at the center of the body	the equivalent reading from the center of the Earth	the bending of the rays of light from the body	

3	2502	A	The major factor that causes the color difference between a red star (Betelgeuse) and a blue star (Rigel) is _____.	its surface temperature	the elevation above the horizon	the mass of the star	the contrast to nearby stars	
3	2504	C	Under the IALA-A Buoyage System, when entering from seaward a lateral system buoy to be left to starboard may display which topmark shown?	A	B	C	D	D046NG
3	2505	D	At the approaches to Savannah, GA, with the wind coming out of the west, the wind-driven current will be flowing approximately _____.	280°	260°	100°	080°	
3	2506	A	Which is TRUE on the Western Rivers when a vessel downbound with a following current is meeting an upbound vessel?	She has the right of way only if she is a power-driven vessel.	She has the right of way only if she has a tow.	She does not have the right of way, since the other vessel is not crossing the river.	She must wait for a whistle signal from the upbound vessel.	
3	2508	B	Normal pool elevation is the height in feet of the section of river above a dam. This height is measured from _____.	low steel on the Huey P. Long Bridge	mean sea level	the local water table	the minimum dam control level	
3	2509	C	All persons or vessels within the lock area, including the lock approach channels, come under the authority of the _____.	dockmaster	dock captain	lockmaster	lock foreman	
3	2510	D	When correcting apparent altitude to observed altitude, you do NOT apply a correction for _____.	the equivalent reading to the center of the body	the equivalent reading from the center of the Earth	the bending of the rays of light from the body	inaccuracies in the reference level	
3	2512	A	In the time diagram shown _____.	you are in east longitude	your time is about 1000	your date is a day earlier than the date at Greenwich	you must be in the Northern Hemisphere for it to be accurate	D005NG
3	2514	D	Sidereal time is NOT used _____.	as the basis for star charts	to enter a star finder	in sight reduction using Pub 249	in sight reductions of planet observations	
3	2516	B	Apparent time is based on _____.	a fictitious sun moving along the celestial equator	the visible sun moving along the ecliptic	the Moon's motion in relation to the Sun	the movement of the first point of Aries	
3	2518	C	In low latitudes, the full Moon will always rise at about _____.	sunrise	1200 LMT	sunset	2400 LMT	
3	2519	C	The standard time meridian for zone description -12 is _____.	165.0°E	172.5°E	180.0°	172.5°W	
3	2520	C	When correcting the sextant altitude to apparent altitude you are correcting for inaccuracies in the reference level and _____.	the equivalent reading to the center of the body	the equivalent reading from the center of the Earth	for inaccuracies in the instrument	the bending of the rays of light from the body	

3	2522	C	The letter H in illustration D006NG represents the _____.	celestial horizon	geoidal horizon	visible horizon	refractive horizon	D006NG
3	2524	A	What is the equivalent of 2° 35' in time units?	10 min. 20 sec.	9 min. 10 sec.	7 min. 06 sec.	6 min. 43 sec.	
3	2525	D	Daylight savings time is a form of zone time that adopts the time _____.	two zones to the west	two zones to the east	one zone to the west	one zone to the east	
3	2526	C	What is the equivalent of 10 min. 52 sec. in arc units?	0°47'	1°12'	2°43'	3°52'	
3	2527	B	In the doldrums you can expect _____.	steady, constant winds	frequent rain showers and thunderstorms	steep pressure gradients	low relative humidity	
3	2529	B	A bridge over a navigable waterway is being repaired. There is a traveler platform under the bridge's deck that significantly reduces the vertical clearance. If required by the CG district commander, how will this be indicated at night?	Illumination by flood lights	A quick flashing red light at each lower corner	A strobe light visible both up and downstream	Fixed amber lights under the extreme outer edges of the traveler	
3	2530	D	The distance between any two meridians measured along a parallel of latitude _____.	increases in north latitude and decreases in south latitude	decreases as DLO increases	increases with increased latitude	decreases with increased latitude	
3	2536	C	A revised print of a chart is made _____.	after every major hydrographic survey of the area covered by the chart	when there are numerous corrections to be made or the corrections are extensive	when a low-stock situation occurs and minor corrections are made	every two years to update the magnetic variation information	
3	2538	C	The light characteristic of composite group flashing (2 + 1) is used in the Aids to Navigation System on the Western Rivers for lights on _____.	the right descending bank	the left descending bank	preferred-channel buoys	daymarks with no lateral significance	
3	2539	C	Under the IALA cardinal system, a mark with quick white light showing 3 flashes every 10 seconds indicates that the safest water in the area is on the _____.	north side of the mark	west side of the mark	east side of the mark	south side of the mark	
3	2540	C	The distance between any two meridians measured along a parallel of latitude and expressed in miles is the _____.	difference in longitude	mid-longitude	departure	meridian angle	
3	2542	C	Which magnetic compass corrector(s) CANNOT be set while the vessel is on a heading of magnetic north or magnetic south?	Athwartships magnets	Heeling magnet	Flinders bar	All of the above can be set on magnetic north or magnetic south headings.	

3	2544	B	At McAlpine L & D, normal upper pool elevation is 420.0 feet MSL, equal to 12.0 feet on the upper gage. The vertical clearance at the Clark Memorial Highway bridge is 72.6 feet above normal pool. What is the clearance if the gage reads 27.2 feet?	25.4 feet	57.4 feet	60.6 feet	72.6 feet	
3	2546	A	A structure, usually made of stone, or cement pilings, which extends from the bank at approximately right angles to the current is called a _____.	dike	revetment	cutoff	crib	
3	2548	A	On the Mississippi River, gage zero is the gage reading measured from the _____.	National Geodetic Vertical Datum	low water reference plane	the lowest recorded river depth	the highest recorded river depth	
3	2560	B	A plane that cuts the Earth's surface at any angle and passes through the center will always form _____.	the equator	a great circle	a small circle	a meridian	
3	2562	B	In the time diagram shown _____.	the GHA of the Sun is approximately 330°	your date is one day later than the date at Greenwich	the LHA of the Sun is approximately 120°	you are in west longitude	D005NG
3	2566	C	When the time is based on the movement of the visible Sun along the ecliptic the time is known as _____.	real time	visible time	apparent time	mean time	
3	2567	D	When outbound from a U.S. port, a buoy displaying a flashing red light indicates _____.	a sharp turn in the channel to the right	a wreck to be left on the vessel's starboard side	a junction with the preferred channel to the left	the port side of the channel	
3	2569	D	The mean sun used to measure time moves _____.	along the ecliptic at 15° per hour	along the celestial equator at 15° per day	along the ecliptic at 15° per day	along the celestial equator at 15° per hour	
3	2570	D	A plane that cuts the Earth's surface and passes through the poles will always form _____.	the equator	a loxodromic curve	a small circle	a meridian	
3	2572	B	The dividing meridian between zone descriptions -4 and -5 is _____.	60°00'E	67°30'E	75°00'E	60°00'W	
3	2574	B	What is the equivalent of 2°52' in time units?	9 min. 23 sec.	11 min. 28 sec.	11 min. 56 sec.	12 min. 18 sec.	
3	2576	D	What is the equivalent of 8 min. 56 sec. in arc units?	0°28'	0°46'	1°12'	2°14'	
3	2579	D	A phase correction may be applicable to correct the sextant altitude correction of _____.	any star	the Sun	third magnitude stars only	some planets	
3	2580	C	The angle at the pole measured through 180°From the prime meridian to the meridian of a point is known as _____.	the departure	the polar arc	longitude	Greenwich hour angle	

3	2583	D	You are in the Northern Hemisphere and a tropical wave is located 200 miles due west of your position. Where will the wave be located 24 hours later?	In the same place	Closer and to the west	Closer and to the east	Farther away to the west	
3	2585	B	The letter D as shown represents the _____.	visible horizon	geometrical horizon	sensible horizon	celestial horizon	D006NG
3	2586	B	A chart has extensive corrections to be made to it. When these are made and the chart is again printed, the chart issue is a _____.	first edition	new edition	revised edition	reprint	
3	2587	A	Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?	C 166°T, Sp 24 knots	C 013°T, Sp 7 knots	C 291°T, Sp 25 knots	C 112°T, Sp 4 knots	
3	2588	A	You are approaching an open drawbridge and sound the proper signal. You receive no acknowledgment from the bridge. Which action should you take?	Approach with caution and proceed through the open draw.	Approach under full control to a position no closer than 400 yards from the bridge and await a signal from the bridge.	Hold in the channel as a vessel is closing the bridge from the other direction.	Resound the opening signal and do not pass through the bridge until signals have been exchanged.	
3	2589	D	Under the IALA cardinal system, a mark with a quick white light showing 6 flashes followed by one long flash indicates that the safest water is on the _____.	north side of the mark	west side of the mark	east side of the mark	south side of the mark	
3	2590	D	A plane perpendicular to the polar axis will never form what line on the Earth's surface?	Great circle	Equator	Small circle	Meridian	
3	2592	A	A deadhead is a(n) _____.	tree or log awash in a nearly vertical position	crew member who refuses to work	upstream end of a land wall	buoy that is adrift	
3	2594	C	At McAlpine L & D, normal upper pool elevation is 420.0 feet (130.8 meters) MSL, equal to 12.0 feet (3.7 meters) on the upper gage. The vertical clearance at the Clark Memorial Highway bridge is 72.6 feet (22.1 meters) above normal pool. What is the clearance if the gage reads 10.6 feet (3.2 meters)?	84.6 feet (25.8 meters)	83.2 feet (25.4 meters)	74.0 feet (22.6 meters)	62.0 feet (18.9 meters)	
3	2596	A	The abbreviation L.W.R.P. on the navigation maps means _____.	low water reference plane	low winter runoff point	least water river plane	land wall reference point	

3	2597	C	You determine your vessel's position by taking a range and bearing to a buoy. Your position will be plotted as a(n) _____.	fix	running fix	estimated position	dead-reckoning position	
3	2598	B	A vessel is proceeding downstream in a narrow channel on the Western Rivers when another vessel is sighted moving upstream. Which vessel has the right of way?	The vessel moving upstream against the current	The vessel moving downstream with a following current	The vessel located more towards the channel centerline	The vessel with the least amount of maneuverability	
3	2600	C	A parallel of latitude other than the equator is a _____.	great circle	loxodromic curve	small circle	gnomonic curve	
3	2602	D	The lunar day is also known as the _____.	lunitidal interval	vulgar establishment of the port	nodal day	tidal day	
3	2604	A	A sidereal day is approximately how much shorter than a solar day?	4 minutes	8 minutes	12 minutes	16 minutes	
3	2606	B	The measurement of local time is based on the passage of the Sun over the _____.	upper branch of the observer's meridian	lower branch of the observer's meridian	upper branch of the Greenwich meridian	lower branch of the Greenwich meridian	
3	2608	C	You should plot your dead reckoning position _____.	from every estimated position	every three minutes in pilotage waters	from every fix or running fix	only in pilotage waters	
3	2609	D	The letter A in illustration D006NG represents the _____.	geoidal horizon	celestial horizon	visible horizon	sensible horizon	D006NG
3	2610	B	A line on the Earth parallel to the equator is a _____.	gnomonic curve	small circle	meridian	great circle	
3	2612	A	The dividing meridian between zone descriptions -7 and -8 is _____.	112°30'E	118°30'E	120°00'E	116°30'W	
3	2614	D	What is the equivalent of 4°36' in time units?	9 min. 12 sec.	14 min. 36 sec.	15 min. 36 sec.	18 min. 24 sec.	
3	2616	D	What is the equivalent of 4 min. 04 sec. in arc units?	60°16'	8°08'	2°08'	1°01'	
3	2619	B	In low latitudes, a first quarter Moon will always rise at about _____.	sunrise	1200 LMT	sunset	2400 LMT	
3	2620	B	The navigator is concerned with three systems of coordinates. Which system is not of major concern?	Terrestrial	Ecliptic	Celestial horizon	Celestial equator	
3	2625	C	Stormy weather is usually associated with regions of _____.	high barometric pressure	changing barometric pressure	low barometric pressure	steady barometric pressure	
3	2626	C	What information is found in the chart title?	Date of the first edition	Date of the edition and, if applicable, the revision	Information on the sounding datum	Information on which IALA buoyage system applies	
3	2627	B	Stormy weather is usually associated with regions of _____.	high barometric pressure	low barometric pressure	steady barometric pressure	changing barometric pressure	

3	2628	B	A drawbridge may use visual signals to acknowledge a vessel's request to open the draw. Which signal indicates that the draw will NOT be opened immediately?	A flashing amber light	A fixed red light	A white flag raised and lowered vertically	A flashing white light	
3	2629	D	In both regions of the IALA buoyage system, which topmark is used on a special mark?	A	B	C	D	D022NG
3	2630	D	In the celestial equator system of coordinates what is NOT equivalent to the longitude of the Earth system of coordinates?	SHA	t	LHA	Zn	
3	2632	A	A section of the river that is narrower than usual and is often navigable from bank to bank is a _____.	chute	stabilized channel	slough	navigable pass	
3	2634	A	Under the U.S. Aids to Navigation System on the Western Rivers, a preferred-channel buoy is _____.	horizontally-banded red and green	vertically-striped red and white	solid red	solid green	
3	2636	D	You are ascending a river and exchanging navigational information via radiotelephone with a descending vessel. If the descending vessel advises you to "watch for the set" above point X, what would you expect to encounter above point X?	An increase in current velocity	Slack water	Shallow water	A sideways movement of your vessel	
3	2638	D	A vessel crossing a river on the Western Rivers has the right of way over _____.	vessels ascending the river	vessels descending the river	all vessels ascending and descending the river	None of the above	
3	2639	A	Under the U.S. Aids to Navigation System used on the Western Rivers, aids to navigation lights on the right descending bank show _____.	white or green lights	white or red lights	green lights only	white lights only	
3	2640	B	In the celestial equator system of coordinates what is the equivalent to the meridians of the Earth system of coordinates?	Horizon	Hour circles	Vertical circles	Parallel of declination	
3	2642	C	Local sidereal time is equal to the _____.	GHA of Aries minus 180°	SHA of Aries	LHA of Aries	right ascension of Aries plus 180°	
3	2644	C	The sidereal day begins _____.	when the sun is over the first point of Aries	when the first point of Aries is over 180° longitude	when the first point of Aries is over the upper branch of the reference meridian	at 0000 on 1 January (Sidereal Date)	
3	2646	A	During daylight savings time the meridian used for determining the time is located farther _____.	east	west	east in west longitude and west in east longitude	west in west longitude and east in east longitude	

3	2648	D	The 3-cm radar as compared to a 10-cm radar with similar specifications will _____.	give better range performance in rain, hail, etc.	display small targets in a mass of dense sea clutter at a greater range	have less sea return in choppy rough seas	display a more maplike presentation for inshore navigation	
3	2649	B	The letter C in illustration D006NG represents the _____.	geoidal horizon	celestial horizon	visible horizon	sensible horizon	D006NG
3	2650	C	In the celestial equator system of coordinates what is equivalent to the colatitude of the Earth system of coordinates?	Coaltitude	Zenith distance	Polar distance	Declination	
3	2651	A	Low pressure disturbances which travel along the intertropical convergence zone are called _____.	tropical waves	tropical disturbances	permanent waves	tidal waves	
3	2652	D	The dividing meridian between zone descriptions -10 and -11 is _____.	135°30'E	145°00'E	150°00'E	157°30'E	
3	2654	B	What is the equivalent of 5°54' in time units?	20 min. 16 sec.	23 min. 36 sec.	25 min. 54 sec.	30 min. 27 sec.	
3	2656	C	What is the equivalent of 0 min. 16 sec. in arc units?	0°32'	0°16'	0°04'	0°01'	
3	2659	D	IN REGION A of the IALA Buoyage System, when entering from seaward, the port side of a channel would be marked by a _____.	black can buoy	red conical buoy	black conical buoy	red can buoy	
3	2660	D	In the celestial equator system of coordinates what is equivalent to the longitude of the Earth system of coordinates?	Zenith distance	Azimuth angle	Declination	Greenwich hour angle	
3	2664	C	The Light List shows a lighted aid to navigation on the right bank. This means that the light can be seen on the port side of a vessel _____.	crossing the river	descending the river	ascending the river	proceeding towards sea	
3	2669	A	Under the IALA Buoyage System, which topmark shown will be displayed on a safe water mark?	A	B	C	D	D023NG
3	2670	C	The angle that is measured westward from the first point of Aries to the hour circle of the body along the celestial equator is the _____.	Greenwich sidereal angle	local sidereal time	sidereal hour angle	azimuth angle	
3	2672	A	When you are steering on a pair of range lights and find the upper light is in line above the lower light, you should _____.	continue on the present course	come left	come right	wait until the lights are no longer in a vertical line	
3	2673	C	A bluff bar is a bar _____.	extending out from a bluff alongside the river	that tends to give a false indication of its position	that has a sharp drop off into deep water	that is perpendicular to the current	

3	2674	D	In the U.S. Aids to Navigation System on the Western Rivers, a preferred channel buoy to be left to port while proceeding downstream will _____.	have the upper band red	show a red light if lighted	have a characteristic of composite group flashing if lighted	All of the above	
3	2675	B	When you are steering on a pair of range lights and find the upper light is in line above the lower light, you should _____.	come left	continue on the present course	come right	wait until the lights are no longer in a vertical line	
3	2676	D	The place where a channel moves from along one bank of the river over to the other bank of the river is called a _____.	draft	cutoff	draw	crossing	
3	2678	D	A vessel crossing a river on the Western Rivers, must keep out of the way of a power-driven vessel _____.	descending the river with a tow	ascending the river with a tow	ascending the river without a tow	All of the above	
3	2679	A	Under the U.S. Aids to Navigation System on the Western Rivers, a daymark on the right descending bank will _____.	be green	have an odd number	indicate the gage reading	have yellow retroreflective markings	
3	2680	B	The angle measured eastward from the vernal equinox along the celestial equator often expressed in time units is the _____.	Greenwich sidereal time	right ascension	local sidereal time	sidereal hour angle	
3	2682	B	Sidereal time is used by navigators when _____.	used with the equation of time	used in the form of LHA Aries	calculating the time of moonrise	determining local apparent time	
3	2683	B	A vessel's position should be plotted using bearings of _____.	buoys close at hand	fixed known objects on shore	fixed objects	All of the above	
3	2684	B	The maximum difference between mean time and apparent time is _____.	equal to the longitude expressed in time units	about 16 minutes	the difference between the GHA of mean sun and the first point of Aries	15° of arc	
3	2686	B	The standard time meridian for description +12 is _____.	172.5°E	180.0°	172.5°W	165.0°W	
3	2688	C	The 10-cm radar as compared to a 3-cm radar of similar specifications will _____.	be more suitable for river and harbor navigation	provide better range performance on low lying targets during good weather and calm seas	have a wider horizontal beam width	have more sea return during rough sea conditions	
3	2689	A	The letter D in illustration D006NG represents _____.	geometrical horizon	visible horizon	celestial horizon	sensible horizon	D006NG
3	2690	D	Right ascension is primarily used by the navigator for _____.	calculating amplitudes	calculating great circle sailings by the Ageton method	entering the Air Navigation Tables (Selected Stars) Pub 249	plotting on star finders	

3	2692	C	The dividing meridian between zone descriptions -2 and -3 is _____.	15°30'E	30°00'E	37°30'E	45°00'E	
3	2694	C	What is the equivalent of 10°48' in time units?	2 min. 39 sec.	20 min. 12 sec.	43 min. 12 sec.	50 min. 12 sec.	
3	2695	C	You are plotting a running fix in an area where there is a determinable current. How should this current be treated in determining the position?	The drift should be added to the ship's speed.	The current should be ignored.	The course and speed made good should be determined and used to advance the LOP.	The set should be applied to the second bearing.	
3	2700	A	In the horizon system of coordinates what is equivalent to the meridian angle of the celestial equator system?	Azimuth angle	Zenith distance	Colatitude	Altitude	
3	2703	C	Which publication indicates the HYDROLANTS or HYDROPACS issued since the previous working day?	Broadcast Notice to Mariners	Local Notice to Mariners	Daily Memorandum	Summary of Corrections	
3	2704	D	The Light List shows a lighted aid to navigation on the right bank. This means that the light can be seen on the starboard side of a vessel _____.	proceeding from seaward	crossing the river	ascending the river	descending the river	
3	2705	A	Information about the direction and velocity of rotary tidal currents is found in the _____.	Tidal Current Tables	Mariner's Guide	Tide Tables	Nautical Almanac	
3	2706	C	The following types of vessels are awaiting lockage on the upper Mississippi. Which type of vessel is normally passed through the lock first?	Pleasure craft	Commercial towboats	Commercial passenger vessels	Commercial fishing vessels	
3	2707	A	You will find information about the duration of slack water in the _____.	Tidal Current Tables	Tide Tables	American Practical Navigator	Sailing Directions	
3	2708	D	You are approaching a drawbridge and have sounded the proper whistle signal requesting it to open. You hear a signal of one prolonged and one short blast from the bridge. Which action should you take?	Anchor or use an alternate route because the bridge is out of service for an extended period of time.	Approach to a point not closer than 400 yards (360 meters) from the bridge and await further signals.	Hold in the channel as the bridge will open within 15 minutes.	Approach under full control to pass through the bridge.	
3	2709	D	Under the IALA-B Buoyage System, when entering from seaward a lateral system buoy to be left to port may display which of the topmarks shown?	A	B	C	D	D046NG
3	2710	B	In the horizon system of coordinates what is equivalent to the local hour angle of the celestial equator system?	Altitude	Azimuth	Zenith distance	Colongitude	

3	2711	A	Information about currents on the Pacific Coast of the U. S. are found in the _____.	Tidal Current Tables	Nautical Almanac	Tide Tables	Ocean Current Tables	
3	2712	B	A bold reef is a reef _____.	with part of it extending above the water	that can be detected by water turbulence	that drops off sharply	perpendicular to the current	
3	2714	B	A current moving across a lock entrance toward the river or toward the dam is called a(n) _____.	cutoff	outdraft	lockwash	springpool	
3	2716	D	Under the U.S. Aids to Navigation System on the Western Rivers, passing daymarks on the left descending bank are _____.	green squares	green diamonds	red diamonds	red triangles	
3	2718	D	A power-driven vessel operating in a narrow channel with a following current, on the Western Rivers, is meeting an upbound vessel. Which statement is TRUE?	The downbound vessel has the right-of-way.	The downbound vessel must initiate the required maneuvering signals.	The downbound vessel must propose the manner and place of passage.	All of the above	
3	2719	C	Under the U.S. Aids to Navigation System on the Western Rivers, passing daymarks on the right descending bank are _____.	red diamond-shaped panels with red reflector borders	red triangular-shaped panels with red reflector borders	green square-shaped panels with green reflector borders	green triangular-shaped panels with green reflector borders	
3	2720	C	When pushing barges ahead close to a steep revetment where there is no current, what is MOST likely to occur?	The stern of the towboat will tend to sheer away from the revetment.	Your speed over the ground will increase.	The head of the tow will tend to sheer away from the revetment.	All of the above	
3	2721	A	You are plotting a running fix. How many fixed objects are needed to take your lines of position from?	One	Two	Three	None	
3	2722	B	The paths of intended travel between three or more points is the _____.	course	track	bearing	course over the ground	
3	2724	A	Which condition indicates that your radar needs maintenance?	Serrated range rings	Indirect echoes	Multiple echoes	Blind sector	
3	2725	D	A position that is obtained by using two or more intersecting lines of position taken at nearly the same time, is a(n) _____.	estimated position	dead-reckoning position	running fix	fix	
3	2726	B	A daymark used as a special mark is indicated by which letter in the diagram?	A	B	C	D	D045NG
3	2729	C	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ships fog horn 5.5 seconds after the signal was sounded. What is the distance to the shore?	3825 ft (1166 meters)	3450 ft (1052 meters)	3072 ft (936 meters)	2475 ft (754 meters)	

3	2730	A	When attempting an upstream landing while pushing empty barges ahead in a hard onshore wind, the approach is best made _____.	with bow out, stern in	with bow in, stern out	parallel to the dock, as close in as possible	parallel to the dock, as far out as possible	
3	2737	B	A lateral system buoy displaying a quick light _____.	should be passed close aboard on either side	indicates that special caution is required	is used at a channel bifurcation or junction	is painted with red and white vertical stripes	
3	2738	C	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 3 seconds after the signal was sounded. What is the distance to the shore?	1100 yards	872 yards	550 yards	792 yards	
3	2739	D	A daymark used to indicate the starboard side of the channel when approaching from seaward will have the shape indicated by what letter in illustration D045NG?	A	B	C	D	
3	2740	C	When one upbound vessel is overtaking another vessel and both are pushing a tow ahead, what reaction may you expect?	Both towheads will tend to drift apart, and the overtaking vessel will be slowed down.	Both towheads will tend to drift together, and the overtaking vessel will be slowed down.	Both towheads will tend to drift apart, and the overtaken vessel will be slowed down.	Both towheads will tend to drift together, and the overtaken vessel will be slowed down.	
3	2741	A	A general chart could have a scale of _____.	1:200,000	1:1,000,000	1:50,000	not more than 1:25,000	
3	2742	B	A white diamond daymark with an orange border is a(n) _____.	special mark	information or regulatory mark	lateral aid on the intracoastal waterway	safe water mark	
3	2744	A	The standard atmospheric pressure measured in inches of mercury is _____.	29.92	500.0	760.0	1013.2	
3	2746	D	What is used to measure wind velocity?	Psychrometer	Barometer	Wind sock	Anemometer	
3	2750	B	When pushing a tow and approaching barges tied off to the shore, you should _____.	increase speed so you will pass faster	decrease speed while passing so you won't create a suction	do nothing different as the barges should be tied off properly	move to the opposite side of the channel from the barges and increase speed	
3	2752	C	A daymark used to indicate the safe water in a channel will have which of the shapes shown?	A	B	C	D	D045NG
3	2760	B	You are pushing a tow ahead, at high speed, near the right hand bank of a canal. The forces affecting your towboat and tow will tend to _____.	push both the head of the tow and the stern of the towboat away from the right hand bank	push the head of the tow away from, and pull the stern of the towboat into, the right hand bank	pull both the head of the tow and the stern of the towboat into the right hand bank	pull the head of the tow into, and push the stern of the towboat away from, the right hand bank	
3	2762	A	You take a bearing of 176° of a lighthouse. Which bearing of another object would give the best fix?	079°	151°	176°	292°	

3	2764	D	You are in a channel inbound from sea. A daymark used to mark a channel junction when the preferred channel is to port will have the shape indicated by what letter in illustration D045NG?	A	B	C	D	
3	2766	C	In low latitudes, the high(s) of the diurnal variation of pressure occur(s) at _____.	noon	noon and midnight	1000 and 2200	1600	
3	2768	C	Which type of daymark is used to mark the starboard side of the channel when entering from sea?	Red and white octagon	Black and white diamond	Red triangle	Green square	
3	2769	D	If your vessel must pass through a draw during a scheduled closure period, what signal should you sound to request the opening of the draw?	One prolonged blast followed by one short blast	Three short blasts	One prolonged blast followed by three short blasts	Five short blasts	
3	2770	C	What is most likely to happen when you push a multiple tow into a countercurrent?	Going upstream you will make better speed with no danger involved.	Going downstream you will be slowed down but will keep control of the tow.	There is a good chance you will break up the tow.	No danger exists as long as you steer a straight course through the eddy.	
3	2772	A	The direction in which a vessel should be steered between two points is the _____.	course	heading	bearing	course over the ground	
3	2774	A	Your radar is set on a true motion display. Which of the following will NOT appear to move across the PPI scope?	Echoes from a buoy	Own ship's marker	Echo from a ship on the same course at the same speed	Echo from a ship on a reciprocal course at the same speed	
3	2776	B	For a well made and well maintained sextant, the maximum value of which correction is usually so small that it can be ignored?	Personal correction	Instrument correction	Phase	Dip correction	
3	2777	D	A sailing chart could have a scale of _____.	not more than 1:25,000	1:35,000	1:100,000	1:700,000	
3	2778	D	A special daymark is a _____.	red-and-white octagon	daymark with a yellow stripe on it	green square	yellow diamond	
3	2780	D	You are pushing a tow ahead and passing close to another towboat which is pushing ahead in the same direction (you are overtaking). After the towheads pass close alongside _____.	you will gain speed	both boats will gain speed	the tows will tend to drift apart	the tows will tend to drift together	
3	2782	A	Your radar is set on a true motion display. Which of the following will appear to move across the PPI scope.	Own ship's marker	Echo from a ship at anchor	Echoes from land masses	All of the above	
3	2788	D	The Light List indicates that a dayboard is a type KGW. You should _____.	see a green and white diamond	leave it to port when southbound on the Atlantic Coast ICW	pass it close aboard on either side	look for another daymark to form the range	

3	2790	B	A towboat has the same draft as the barges it is pushing ahead. If the distance from the stern of the towboat to the head of the tow is 800 feet, where is the approximate location of the pivot point of the unit?	At the head of the tow	250 feet from the head of the tow	400 feet from the head of the tow	600 feet from the head of the tow	
3	2792	C	You take a bearing of 142° and 259° of two objects. Which bearing of a third object will give the best fix?	081°	238°	201°	234°	
3	2794	D	The standard atmospheric pressure in millibars is _____.	760.0	938.9	1000.0	1013.2	
3	2796	A	The correction tables in the Nautical Almanac for use with Moon sights do NOT include the effects of _____.	instrument error	augmentation	semidiameter	parallax	
3	2800	B	Where is the pivot point of a towboat with a tow ahead?	One-third the length of the combined unit forward of the towboat	One-third the length of the combined unit back from the head	At the head of the towboat	One-half the length of the combined unit	
3	2801	B	Mean high water is used _____.	as the reference for soundings on the Gulf coast of the U.S.	to indicate the shoreline where there is a large tidal fluctuation	as the reference plane for bottom contour lines	as the sounding datum for rivers, lakes, etc. regulated by locks	
3	2803	A	Some locations maintain a zone time of -13. What are the Greenwich time and date if the zone time and date are 0152, 10 January?	1252, 9 January	1452, 9 January	0052, 11 January	1452, 11 January	
3	2804	D	The altitude at LAN may be observed by starting several minutes in advance and continuing until a maximum altitude occurs. This procedure should not be used _____.	when the declination and latitude are of different names	when the declination is greater than and the same name as the latitude	if the vessel is stopped or making bare steerageway	on a fast vessel on northerly or southerly headings	
3	2805	D	You are entering port and have been instructed to anchor, as your berth is not yet available. You are on a SW'ly heading, preparing to drop anchor, when you observe the range as shown on your starboard beam. You should _____.	drop the anchor immediately as the range lights mark an area free of obstructions	drop the anchor immediately as a change in the position of the range lights will be an indication of dragging anchor	NOT drop the anchor until the lights are in line	ensure your ship will NOT block the channel or obstruct the range while at anchor	D047NG
3	2809	A	The diurnal variation of pressure is not visible in the middle latitudes in winter because _____.	it is masked by the pressure changes of moving weather systems	the decreased gravitational effect from the sun causes the variation to fade	the decreased average temperature is less than the critical temperature	the increased Coriolis force disperses the pressure variation	

3	2810	A	When steering a tow downstream around the shape of a sand bar, and staying on the proper side of the buoys, an operator should be cautious of _____.	eddies under the bar	swift current under the bar causing loss of control	cross-currents pushing the tow away from the bar	cross-currents pushing the tow into the bar	
3	2812	A	A line of position from a celestial observation is a segment of a _____.	circle of equal altitude	parallel of declination	parallel of altitude	vertical circle	
3	2814	B	In low latitudes the range of the diurnal variation of pressure is up to _____.	0.5 millibar	3.0 millibars	6.0 millibars	10.0 millibars	
3	2816	D	The length of a wave is the length _____.	of the wave's crest	of the wave's trough	measured from crest to trough	measured from crest to crest	
3	2818	D	You take bearings of 313°T and 076°T on two objects. Which bearing of a third object will give the best fix?	048°T	101°T	142°T	187°T	
3	2819	A	The time interval between successive wave crests is called _____.	wave period	wavelength	frequency	significant wave height	
3	2820	D	A towboat is pushing barges ahead at a dangerously fast speed when _____.	the towboat vibrates when backing down	the roostertail exceeds the height of the main deck	a strain is placed on the face wires	water comes over the foredeck of the lead barges	
3	2821	C	The height of tide is the _____.	difference between the depth of the water at high tide and the depth of the water at low tide	depth of water at a specific time due to tidal effect	difference between the depth of the water and the area's tidal datum	difference between the depth of the water and the high water tidal level	
3	2822	A	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ships fog horn 2 seconds after the signal was sounded. What is the distance to the shore?	360 yards	320 yards	280 yards	140 yards	
3	2824	B	When you turn on the fast time constant (differentiator) control of a radar it will _____.	enhance weak target echoes and brighten them on the PPI	reduce clutter over the entire PPI by shortening the echoes	only suppress weak targets to a limited distance from the ship (sea clutter)	reduce the beam width to provide a map-like presentation for navigation	
3	2826	B	You take a bearing of 043° and 169° of two objects. What bearing of a third object will give the best fix?	356°	102°	144°	201°	
3	2828	B	The daily recurring pattern of pressure changes most noticeable in low latitudes is the _____.	daily lapse reading	diurnal variation of pressure	pressure tendency	synoptic pressure	

3	2830	C	The proper way to approach a downstream lock where there is an outdraft is to be _____.	wide out from the land wall, keeping the stern in at all times	wide out from the land wall, keeping the stern out at all times	close in to the land wall, keeping the stern in at all times	close in to the land wall, keeping the stern out at all times	
3	2831	C	A coastal chart could have a scale of _____.	not more than 1:25,000	1:35,000	1:100,000	1:500,000	
3	2832	A	The Light List indicates that a dayboard is a type MR. You should _____.	leave it on either side	look for the other dayboard forming the range	look for an all red daymark	check to enter the correct channel at this junction daymark	
3	2836	D	The correction tables in the front of the Nautical Almanac for use with sun sights do NOT include the effects of _____.	mean refraction	parallax	semidiameter	irradiation	
3	2838	B	You take a bearing of 191° and 313° to two objects. Which bearing of a third object will give the best fix?	001°	069°	209°	356°	
3	2839	C	Privately maintained aids to navigation included in the Light List _____.	are painted white and must use a white light if lighted	must be conspicuously marked by a signboard with the words "PRIVATE AID"	must conform to the standards of the U.S. Aids to Navigation System	are not permitted in or along first-class waterways and may be authorized for second- and third-class waterways	
3	2840	C	The lockmaster has given you permission to tie off on the lower guide wall to wait your turn to lock through. What should you be most concerned with?	A downbound vessel	An upbound vessel	Current reaction when the lock chamber is being emptied	Current reaction when the lock chamber is being filled	
3	2841	A	You are required to enter a lock on your voyage. Information on the lock regulations, signals, and radio communications can be found in _____.	Coast Pilot	Corps of Engineer Information Bulletin	Bowditch	the publication "Key to the Locks"	
3	2842	B	The draw span of a floating drawbridge may be marked with _____.	two white lights	a yellow diamond	flashing blue lights	three red lights on each side of the draw	
3	2843	C	A position obtained by applying ONLY your vessel's course and speed to a known position is a _____.	fix	running fix	dead-reckoning position	probable position	
3	2844	C	The signal from a ramark will show on the PPI as a _____.	coded signal on the same bearing and at a greater range then the transponder	circle surrounding the transponder	radial line from the transponder to the center of the PPI	dashed circle at the same range as the transponder	

3	2846	D	Which type of daymark is used to mark the port side of the channel when entering from sea?	Red and white octagon	Black and white diamond	Red triangle	Green square	
3	2848	B	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ships fog horn 6 seconds after the signal was sounded. What is the distance to the shore?	1200 yards	1100 yards	1000 yards	900 yards	
3	2849	A	You take a bearing of 086° of a lighthouse. What bearing of another object would give the best fix?	000°	066°	112°	271°	
3	2850	D	What is used to help prevent damage to barges, locks, and landings when you are locking or landing a tow?	Dock cushions	Springers	Landing bars	Bumpers (fenders)	
3	2851	B	You determine your vessel's position by taking a range and bearing to a buoy. Your position will be plotted as a(n) _____.	dead-reckoning position	estimated position	running fix	fix	
3	2852	B	A daymark warning of a danger will have the shape indicated by which letter?	A	B	C	D	D045NG
3	2854	C	The distance in miles between the circle of equal altitude for the observed altitude (Ho) and the circle of equal altitude for the computed altitude (Hc) is the _____.	equation of time	zenith distance	intercept	zenith angle	
3	2858	B	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ships fog horn 2 1/2 seconds after the signal was sounded. What is the distance to the shore?	225 yards	460 yards	750 yards	910 yards	
3	2860	B	On the Mississippi and Ohio Rivers, there is a special type of fog known as steam fog. It is caused by _____.	warm air passing over much colder water	cold air passing over much warmer water	a rapid cooling of the ground on a clear night	rain coming out of a warm air mass aloft	
3	2862	D	When slanted letters are used to spell the name of a charted object you know the _____.	object is only a hazard to vessels drawing in excess of 20 feet	position is approximate or doubtful	object is always visible	object may cover and uncover with the tide	
3	2866	D	Some locations maintain a zone time of -13. What are the zone time and date if the Greenwich time and date are 2152, 10 January?	1052, 9 January	0852, 10 January	1052, 10 January	1052, 11 January	
3	2868	B	You are inbound in a channel marked by a range. The range line is 309°T. You are steering 306°T and have the range in sight as shown. Which action should you take?	Continue on the present heading until the range is in line then alter course to the right.	Immediately alter course to the right to bring the range in line.	Immediately alter course to the left to bring the range in line.	Immediately alter course to 309°T if the range is closing.	D048NG

3	2869	C	A pillar buoy is indicated by which letter shown in the illustration?	A	B	C	D	D044NG
3	2870	C	Steam fog is most likely to occur on the Mississippi and Ohio Rivers in _____.	spring, around late evening	spring, around early evening	fall, around early morning	fall, around midday	
3	2874	C	What daymark has NO lateral significance?	Red triangle	Red triangle with a green horizontal stripe	Green and white diamond	Green square	
3	2875	B	A harbor chart could have a scale of _____.	not more than 1:25,000	1:35,000	1:150,000	not less than 1:500,000	
3	2877	B	Class I and II private aids to navigation in or along navigable waters of the United States are listed in the _____.	Sailing Directions	Light List	List of Private Aids	Aids to Navigation Manual	
3	2878	C	Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?	C 356°T, Sp 5 knots	C 099°T, Sp 17 knots	C 192°T, Sp 23 knots	C 278°T, Sp 6 knots	
3	2880	C	While upbound through Memphis, the weather report on the TV news indicates that a cold front will cross western Kentucky and Tennessee the next morning. What weather should accompany this front?	Light, southerly winds; high humidity and possibly fog	Overcast with steady, light rain or drizzle	Gusting winds shifting to the northwest with thunderstorms	Scattered clouds with light to moderate southeasterly winds and possibly fog	
3	2882	D	While upbound through Memphis, the weather report on TV news indicates that a warm front is stationary over the Kentucky - Missouri - Tennessee areas. What weather conditions should you expect?	Strong, gusting winds from the NW with thundershowers	Light winds from the northeast with clear skies	A "blue norther"	Southerly winds with steady rain; fog or overcast	
3	2884	A	The pictures shown represent the geographic location of a vessel and the radar presentation at the same time. Which statement is TRUE?	Ship No. 1 does not appear as an individual target due to the effect of beam width.	Small island is not detected due to the multiple echo effect from the mountain.	A tangent bearing of the headland to the south-southeast is corrected by subtracting one-half of the beam width.	Ship No. 2 is not detected due to the side lobe effect of radar reflecting from the mountain.	D011NG
3	2886	A	On mid-ocean waters, the height of a wind-generated wave is not affected by the _____.	water depth exceeding 100 feet	fetch	wind's velocity	duration of the wind	

3	2890	B	While passing through Memphis, the weather report on the TV news indicates that a cold front is crossing western Kentucky and Tennessee. Tomorrow's weather will be dominated by a high pressure area. What weather should you expect tomorrow?	Light, southerly winds; high humidity and possibly fog	Moderate winds from the northwest, clear visibility and cooler temperatures	Low overcast; mild temperatures with light, steady rain or drizzle	Scattered clouds with light, southeasterly winds; high humidity and possibly fog	
3	2891	B	Twenty-three meters equals _____.	17.50 feet	75.46 feet	96.00 feet	104.99 feet	
3	2892	C	The Light List indicates that a dayboard is a type NB. You should _____.	see a black triangle	look for another daymark forming a range	expect a daymark of no lateral significance	check to enter the correct channel at the junction daymark	
3	2894	B	Fetch is the _____.	distance a wave travels between formation and decay	stretch of water over which a wave-forming wind blows	time in seconds required for two crests to pass a given point	measurement of a wave's steepness	
3	2895	C	A white buoy with an orange rectangle on it is a(n) _____.	junction buoy	safe water buoy	informational buoy	All of the above	
3	2896	B	You are navigating in pilotage waters. The maximum time between fixes should be about _____.	5 minutes	30 minutes	1 hour	4 hours	
3	2899	D	You take a bearing of 043° and 169° of two objects. What bearing of a third object will give the best fix?	356°	073°	192°	309°	
3	2900	D	Who should be consulted for changing conditions of controlling depths in major channels?	U.S. Coast Guard	National Geospatial-Intelligence Agency	National Ocean Service	U.S. Army Corps of Engineers	
3	2902	C	The direction a vessel is pointed at any given time is the _____.	course	track	heading	course over the ground	
3	2904	B	Your radar displays your ship off center. As you proceed on your course, your ship's marker moves on the PPI scope while echoes from land masses remain stationary. What is this display called?	Off center	True motion	Stabilized	Head up	
3	2910	C	You are taking bearings on two known objects ashore. The BEST fix is obtained when the angle between the lines of position is _____.	60°	45°	90°	30°	
3	2913	B	The Daily Memorandum contains information on _____.	active weather disturbances such as hurricanes or tropical storms	the latest navigational warnings	scheduled vessel arrivals and departures for a 24-hour period	water levels at river ports where run-off affects tidal heights	

3	2916	D	You take a bearing of 191° and 313° to two objects. Which bearing of a third object will give the best fix?	022°	131°	211°	249°	
3	2918	B	Which agency maintains federal aids to navigation?	Corps of Engineers	Coast Guard	National Ocean Service	Maritime Administration	
3	2920	C	Navigation charts of the Upper Mississippi River are published by _____.	National Ocean Service	Lake Survey	Corps of Engineers, U.S. Army	U.S. Coast Guard	
3	2922	B	The Light List indicates that a dayboard is a type TR-SY. You should _____.	look for a dayboard of type TR-TY to form a range	leave it to port when southbound on the Atlantic portions of the ICW	pass it close aboard on either side	expect a daymark with no lateral significance	
3	2923	B	You should plot your dead reckoning position _____.	from every estimated position	from every fix or running fix	every three minutes in pilotage waters	only in pilotage waters	
3	2924	B	You take a bearing of 264° of a lighthouse. What bearing of another object would give the best fix?	289°	350°	081°	120°	
3	2925	D	A single line of position combined with a dead-reckoning position results in a(n) _____.	running fix	fix	assumed position	estimated position	
3	2927	B	The position labeled C, as shown, was plotted because _____.	the vessel's course changed from due North to due East	running fixes are better estimates of true position than dead-reckoning positions	the vessel's speed changed	All of the above are correct	D051NG
3	2928	A	You are in a buoyed channel at night and pass a lighted buoy with an irregular characteristic. You should report this to the _____.	Coast Guard	harbor master	Corps of Engineers	National Ocean Service	
3	2930	B	How is a navigation light identified on an Army Corps of Engineers navigation map?	Name and light characteristic	Name and miles from a reference point	Light characteristic and miles A.H.P.	None of the above	
3	2931	B	The vertical distance from the tidal datum to the level of the water is the _____.	range of tide	height of tide	actual water depth	charted depth	
3	2932	B	If the main channel under a bridge is marked with lights of the lateral system the adjacent bridge piers should be marked with _____.	occulting white lights	fixed yellow lights	fixed white lights	flashing yellow lights	
3	2936	C	Information on search and rescue procedures and special, local communications used in Mexican waters will be found in the _____.	World Port Index	International Code of Signals (Pub 102)	Sailing Directions (Planning Guides)	International Aeronautical and Maritime Search and Rescue Manual	
3	2937	C	The depth of the water is indicated on a chart as 32 meters. This is equal to _____.	11.50 fathoms	12.62 fathoms	17.50 fathoms	104.99 fathoms	

3	2938	D	You take a bearing of 176° of a lighthouse. What bearing of another object would give the best fix?	000°	021°	189°	272°	
3	2939	A	The buoy indicated by the letter D as shown is a _____.	nun	can	spar	pillar	D044NG
3	2940	C	On the Corps of Engineer's Navigation Maps, the channel is _____.	midway between the banks	indicated by depths (in feet)	indicated by a broken line	not indicated	
3	2941	C	During daylight savings time the meridian used for determining the time is located farther _____.	west in west longitude and east in east longitude	east in west longitude and west in east longitude	east	west	
3	2944	C	The height of a wave is the vertical distance _____.	from the still water plane to the crest	from the still water plane to the trough	from crest to trough	between water levels at one-quarter of the wave's length	
3	2945	A	A position that is obtained by applying estimated current and wind to your vessel's course and speed is a(n) _____.	estimated position	dead reckoning position	fix	None of the above	
3	2947	C	A position obtained by crossing lines of position taken at different times and advanced to a common time is a(n) _____.	fix	dead-reckoning position	running fix	estimated position	
3	2950	D	On an Army Corps of Engineers navigation map, each mile A.H.P. on the Lower Mississippi River is marked by a _____.	dashed red line	number showing mileage	navigation light	red circle	
3	2952	A	The channel under a bridge is marked with lights of the lateral system. The centerline of the channel shall be marked on the bridge by _____.	an occulting white light	a yellow light	three fixed white lights	a flashing blue light	
3	2954	C	You are inbound in a channel marked by a range. The range line is 309°T. You are steering 306°T. The range appears as shown and is closing. Which action should you take?	Continue on the present heading until the range is in line then alter course to the left.	Immediately alter course to the right to bring the range in line.	Continue on course until the range is closed, then alter course to the right.	Immediately alter course to 309°T.	D047NG
3	2958	D	Drawbridges equipped with radiotelephones display a _____.	day signal of a yellow diamond marked with the call sign	white sign with the number 16 and the call sign on it	black and white diamond marked with RT 16	blue and white sign showing the radio's channels	
3	2960	A	What is NOT found in the Mississippi River System Light List?	Distance that a lighted aid to navigation can be seen at night	Distance between major points on the Mississippi River	A color plate showing the details of the aids to navigation used on the Mississippi River	Times of Coast Guard broadcasts concerning river stages	

3	2961	B	Which position includes the effects of wind and current?	Dead reckoning positions	Estimated positions	Leeway position	Set position	
3	2962	D	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 4 1/2 seconds after the signal was sounded. What is the distance to the shore?	405 yards	628 yards	730 yards	825 yards	
3	2964	D	The pictures shown represent the geographic location of a vessel and the radar presentation at the same time. Which statement is TRUE?	Ship No. 1 does not paint as an individual target due to the side lobe affect.	The small island is not detected due to the limitation caused by the pulse length.	A tangent bearing of the headland to the south-southeast is corrected by subtracting one-half of the beam width.	Ship No. 2 is not detected due to the combined affects of beam width and pulse length.	D011NG
3	2965	C	Which symbol represents a 10-fathom curve?	____ ____ ____	... ____ ... ____	____ . _____ . ____ . ____	.....	
3	2966	C	You take a bearing of 264° of a lighthouse. Which bearing of another object would give the best fix?	291°	059°	182°	239°	
3	2968	C	Some locations maintain a zone time of -13. What are the zone time and date if the Greenwich time and date are 0152, 10 January?	0052, 9 January	0258, 9 January	1452, 10 January	0052, 11 January	
3	2969	B	A red triangular daymark marks _____.	the centerline of a navigable channel	the starboard side of a channel	a prominent object of navigational interest that has no lateral significance	an area of a channel where passing another vessel is permitted	
3	2970	B	The Light List shows a lighted aid to navigation on the left bank. This means that the light can be seen on the port side of a vessel _____.	ascending the river	descending the river	crossing the river	proceeding from seaward	
3	2972	A	You are in a channel inbound from sea. A daymark used to mark a channel junction when the preferred channel is to starboard will have the shape indicated by what letter in illustration D045NG?	A	B	C	D	
3	2973	D	You should plot a dead reckoning position after every _____.	course change	speed change	fix or running fix	All of the above	
3	2974	B	What daymark shape is used in the lateral system?	Semicircle	Triangle	Pentagon	Diamond	
3	2977	D	Which symbol represents a 2-fathom curve?	-- -- --	.. ____ .. ____ .. ____	____ . ____ . ____ .	.. ..	

3	2978	D	Where do you find the semidiameter correction to be used to correct sextant observations of the stars?	It is included in the altitude corrections inside the front cover of the Nautical Almanac.	Table 25 in Bowditch contains the correction.	A correction of -0.5' should be applied to all star sights.	No semidiameter correction is used.	
3	2979	B	You take a bearing of 356° of a lighthouse. What bearing of another object would give the best fix?	013°	082°	176°	201°	
3	2980	D	What volume of the Coast Guard Light List is used for the Mississippi River system?	I	II	IV	V	
3	2981	A	The maritime radio system consisting of a series of coast stations transmitting coastal warnings is called _____.	NAVTEX	HYDROLANT/HYDRO PAC	NAVAREA	SAFESEA	
3	2982	A	You take a bearing of 142° and 259° of two objects. What bearing of a third object will give the best fix?	019°	084°	166°	281°	-
3	2984	D	What two shapes shown are used to indicate a preferred channel?	A and B	B and C	C and D	A and D	D045NG
3	2986	B	Some places maintain a zone time of -13. What are the time and date at Greenwich if the zone time and date are 2152, 10 January?	1052, 9 January	0852, 10 January	1052, 10 January	1052, 11 January	
3	2988	B	The buoy indicated by the letter A is a _____.	nun	can	spar	pillar	D044NG
3	2990	B	In which source could you find the vertical clearance of a bridge on the Ohio River?	Notice to Mariners	Light List of the Mississippi River System	Great Lakes Pilot	Coast Pilot of the Gulf of Mexico	
3	2991	B	When using a radar in an unstabilized mode, fixes are determined most easily from _____.	objects that are close aboard	ranges	tangent bearings	center bearings	
3	2994	A	You take a bearing of 313° and 076° of two objects. Which bearing of a third object will give the best fix?	014°	133°	255°	339°	
3	2998	A	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ships fog horn 3 1/2 seconds after the signal was sounded. What is the distance to the shore?	640 yards	480 yards	315 yards	143 yards	
3	2999	C	When entering a channel from seaward, the numbers on buoys _____.	are the same as their Light List number	are marked in 6 inch figures with retroreflective material	increase with the even numbers to starboard	decrease with the odd numbers to starboard	

3	3000	B	All aids to navigation listed in the Mississippi River System Light List are shown as miles from a reference point and on the _____.	east or west bank	left or right descending bank	port or starboard side of the vessel	left or right ascending bank	
3	3002	D	The diurnal variation of pressure is most noticeable _____.	above the polar circles	in a low pressure area	during periods of low temperatures	in the doldrums	
3	3003	A	The height of tide is the _____.	difference between the depth of the water and the area's tidal datum	depth of water at a specific time due to tidal effect	difference between the depth of the water and the high water tidal level	difference between the depth of the water at high tide and the depth of the water at low tide	
3	3004	D	While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 4 seconds after the signal was sounded. What is the distance to the shore?	209 yards	363 yards	480 yards	730 yards	
3	3005	C	The agonic line on an isomagnetic chart indicates the _____.	magnetic equator	magnetic longitude reference line	points where there is no variation	points where there is no annual change in variation	
3	3006	D	You are outbound in a channel marked by a range astern. The range line is 309°T. You are steering 127°T and have the range in sight as shown. What action should you take?	Come right to 129°T.	Come left until the range comes in line then alter course to 129°T.	Come left until the range comes in line then alter course to 125°T.	Come right to close the range then when on the range steer 129°T.	D047NG
3	3007	D	A rotary current sets through all directions of the compass. The time it takes to complete one of these cycles, in a locale off the East coast of the US, is approximately _____.	2 1/2 hours	3 1/2 hours	6 1/4 hours	12 1/2 hours	
3	3008	D	You take a bearing of 086° of a lighthouse. Which bearing of another object would give the best fix?	291°	261°	242°	196°	
3	3009	C	"Proceeding from seaward" for the purpose of the direction of buoying offshore, lateral system buoys would be proceeding _____.	northerly on the Atlantic Coast	easterly on the Gulf Coast	northerly on the Pacific Coast	None of the above	
3	3010	C	A white buoy with a blue band is _____.	an isolated danger mark	a hydrographic data collection buoy	a mooring buoy	marking a restricted area	
3	3011	B	The survey information upon which a chart is based is found _____.	at the top center of the next line	near the chart title	at the lower left corner	at any convenient location	
3	3012	A	The draw span of a floating drawbridge may be marked with _____.	a yellow light showing Morse Code (B)	a yellow and white diamond	flashing blue lights	three red lights on each side of the draw	

3	3014	B	Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?	C 356°T, Sp 5.5 knots	C 162°T, Sp 27 knots	C 095°T, Sp 30 knots	C 268°T, Sp 22 knots	
3	3016	D	The radar control that shortens all echoes on the display and reduces clutter caused by rain or snow is the _____.	sensitivity time control (sea clutter control)	receiver gain control	brilliance control	fast time constant (differentiator)	
3	3017	C	A rotary current sets through all directions of the compass. The time it takes to complete one of these cycles, in a locale off the East coast of the US, is approximately _____.	3 hours	6 1/4 hours	12 1/2 hours	18 3/4 hours	
3	3018	C	You take a bearing of 356° of a lighthouse. Which bearing of another object would give the best fix?	013°	178°	256°	342°	
3	3019	A	Where would you find information about the time of high tide at a specific location on a particular day of the year?	Tide Tables	Tidal Current Tables	Coast Pilot	Nautical Almanac	
3	3020	B	A mooring buoy, if lighted, shows which color light?	Yellow	White	Blue	Any color except red or green	
3	3021	B	Which information is found in the chart title?	Chart number	Chart sounding datum	Revision and edition date	Variation information	
3	3022	A	A green-and-red banded daymark, green band uppermost, will have the shape shown at letter _____.	A	B	C	D	D045NG
3	3023	A	You have steadied up on a range dead ahead in line with your keel. After a few minutes the range, still dead ahead, appears as shown. Which action do you take?	Alter heading to the left	Alter heading to the right	Increase speed	Maintain heading, keeping the range dead ahead	D047NG
3	3024	D	Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN ?	C 018°T, Sp 6 knots	C 079°T, Sp 24 knots	C 101°T, Sp 7 knots	C 349°T, Sp 25 knots	
3	3025	A	You determine your vessel's position by taking a range and bearing to a buoy. Your position will be plotted as a(n) _____.	estimated position	dead-reckoning position	fix	running fix	
3	3026	B	A compass card without north-seeking capability that is used for relative bearings is a(n) _____.	bearing circle	pelorus	bearing bar	alidade	

3	3028	D	The channel under a bridge is marked with aids from the lateral system. The centerline of the channel is marked on the bridge with _____.	a yellow triangle	three white lights	a black-and-white diamond	a red-and-white octagon	
3	3030	A	Isogonic lines are lines on a chart indicating _____.	points of equal variation	points of zero variation	the magnetic latitude	magnetic dip	
3	3031	B	Which symbol would indicate a large automated navigational buoy, such as those that have replaced some lightships?	A	B	C	D	D015NG
3	3032	D	The direction in which a vessel is steered is the course. The path actually followed is the _____.	route	track	heading	course over the ground	
3	3033	A	A navigator fixing a vessel's position by radar _____.	can use radar information from one object to fix the position	should never use radar bearings	should only use radar bearings when the range exceeds the distance to the horizon	must use information from targets forward of the beam	
3	3035	B	A major advantage of the NAVTEX system when compared to other systems is that _____.	the information can be received on an ordinary FM radio	warnings are printed out for reading when convenient	broadcasts are at scheduled times	a low frequency band is used for long distance transmission	
3	3036	B	Which daymark has no lateral significance?	Square; top half green and bottom half red	Black and white diamond	Red triangle	Green square	
3	3038	D	In low latitudes, the low(s) of the diurnal variation of pressure occur(s) at _____.	noon	noon and midnight	1000 and 2200	0400 and 1600	
3	3039	B	As you enter a U.S. channel from seaward the numbers on the buoys _____.	increase with the can buoys being even numbered	increase with the can buoys being odd numbered	decrease with the can buoys being even numbered	increase in channels going to the north or west, and decrease in channels going to the south or east	
3	3040	C	Which instrument is used to predict the approach of a low pressure system?	Anemometer	Fathometer	Barometer	Thermometer	
3	3042	C	How long would a steady wind need to blow in order to create a wind driven current?	2 hours	6 hours	12 hours	18 hours	
3	3052	D	The Sailing Directions contain information on _____.	required navigation lights	lifesaving equipment standards	casualty reporting procedures	currents in various locations	
3	3053	A	The vertical distance from the tidal datum to the level of the water is the _____.	height of tide	range of tide	actual water depth	charted depth	

3	3054	A	In illustration D051NG, the position labeled C was plotted because _____.	running fixes are better estimates of true position than dead-reckoning positions are	the vessel's course changed from due North to due East	the vessel's speed changed	All of the above are correct	
3	3055	C	A single line of position combined with a dead-reckoning position results in a(n) _____.	running fix	fix	estimated position	assumed position	
3	3056	B	A position obtained by applying ONLY your vessel's course and speed to a known position is a _____.	fix	dead-reckoning position	running fix	probable position	
3	3057	A	IN REGION A of the IALA Buoyage System, when entering from seaward, the starboard side of a channel would be marked by a _____.	green conical buoy	green can buoy	red can buoy	red conical buoy	
3	3060	C	What information is NOT found in the chart title?	Survey information	Scale	Date of first edition	Projection	
3	3061	D	In a river subject to tidal currents, the best time to dock a ship without the assistance of tugs is _____.	at flood tide	at high water	when there is a following current	at slack water	
3	3062	C	If the electronic chart is part of an ECDIS, it must display the minimum data required by IMO/IHO, to include all of the following EXCEPT _____.	hydrography	aids to navigation	tidal currents	regulatory boundaries	
3	3063	D	Which of the following must the electronic chart of an ECDIS display, as required by IMO/IHO?	Hydrography	Ferry routes	Regulatory boundaries	All of the above	
3	3064	C	ECDIS units incorporate Digital Chart Data Formats, which include _____.	vector only	raster only	vector and raster	imposed viewing	
3	3065	D	Raster-scan chart data is _____.	the only format recognized by IMO/IHO	organized into many separate files	composed of files that are smaller than vector files	a digitized "picture" of a chart in one format and one layer	
3	3067	D	Which of the following are data layer categories to be displayed on ECDIS?	ECDIS warnings and messages	Hydrographic Office data	Notice to Mariners information	All of the above	
3	3068	C	Which of the following data layer categories is NOT displayed on ECDIS?	Notice to Mariners information	ECDIS warnings and messages	Ship hydrodynamic information	Hydrographic Office data	
3	3069	C	The database resulting from (1) the transformation of the electronic navigational chart (ENC) by ECDIS for appropriate use, (2) the updates to the ENC by appropriate means, and (3) the additional data added by the mariner, is called the _____.	display base information	standard display information	system electronic navigational chart	chart display information	
3	3070	B	The database information that should be shown when a chart is first displayed on ECDIS is the _____.	display base information	standard display information	system electronic nautical chart	chart display information	

3	3071	A	The level of database information which cannot be removed from the ECDIS display and consists of information which is required at all times in all geographic areas and under all circumstances is the _____.	display base information	standard display information	system electronic nautical chart	chart display information	
3	3072	D	ECDIS must give an alarm for which of the following cases?	When the specified limit for deviation from the planned route is exceeded	If the ship, within a specified time set by the watch officer, is going to cross a safety contour	If the ship, within a specified time set by the watch officer, is going to cross the boundary of a prohibited area	All of the above	
3	3073	A	ECDIS must give an alarm for which of the following cases?	If the ship is going to reach a critical point on the planned route	When the speed of a dangerous target exceeds a set limit	If the ship's ETA has changed beyond the set limit	All of the above	
3	3074	B	ECDIS must give an alarm for which of the following cases?	When the speed of a dangerous target exceeds a set limit	When the specified limit for deviation from the planned route is exceeded	If the ship's ETA has changed beyond the set limit	None of the above	
3	3075	B	Chart information details to be used in ECDIS should be the latest edition of information originated by a government-authorized hydrographic office and conform to the standards of (the) _____.	International Maritime Organization	International Hydrographic Organization	NASA	US Coast Guard	
3	3076	C	An ECDIS is required to display which information?	Radar targets	ARPA vectors	Hydrographic data	All of the above	
3	3077	C	ECDIS must have the capability to preserve the record of the voyage track for the previous _____.	4 hours	6 hours	12 hours	24 hours	
3	3078	D	Which data must ECDIS be able to record at one-minute intervals?	Position	Electronic navigational chart source	Course made good history	All of the above	
3	3079	D	With respect to failure warnings and status indications, GPS receivers should provide, at a minimum, _____.	an indication within 5 seconds if the specified HDOP has been exceeded	a warning of loss of position	a differential GPS status indication of the receipt of DGPS signals	All of the above	
3	3080	B	Which feature, when set to zero, might allow a GPS unit to have an accuracy equivalent to Precise Positioning Service receiver capability?	Transit	Selective Availability	Auto-correlation	Anti-spoofing	
3	3081	A	The highest level of commercial navigational accuracy is provided by _____.	DGPS, within a coverage area	SPS, without selective availability	PPS, without selective availability	NAVSAT, using the Doppler-shift	

3	3082	B	Which type of GPS receiver has at least four channels to process information from several satellites simultaneously?	Sequential	Continuous	Multiplex	None of the above	
3	3083	B	Which theoretical minimum number of measurements from satellites does a GPS receiver need in order to provide an exact three-dimensional position?	Five	Four	Three	Two	
3	3084	A	An ECDIS is required to display which information?	Soundings	Waypoints	Meteorological data	Radar targets	
3	3085	D	An ECDIS is required to display which information?	Water temperature	Climatology data	Speed of advance	Depth contours	
3	3086	A	Which data must ECDIS be able to record at one-minute intervals?	Course made good history	Estimated time of arrival	Speed through the water	Shaft RPM	
3	3087	A	With respect to failure warnings and status indications, GPS receivers should provide, at a minimum, _____.	a warning of loss of position	a cross-track error alarm	an indication of a change in satellite configuration	an alarm if engine speed is suddenly reduced	
3	3088	B	With respect to failure warnings and status indications, GPS receivers should provide, at a minimum, _____.	an alarm if engine speed is suddenly increased	an alarm if a new position has not been calculated within the last two seconds	an indication of a change in the number of satellites	None of the above.	
3	3089	D	As a licensed Merchant Marine Officer you are expected to _____.	obtain a weather forecast before setting out from port	listen to weather forecasts on the radio while enroute	understand all broadcast weather warning information	All of the above	
3	3090	C	NOAA VHF weather reports are continuously broadcast on VHF channels WX-1, WX-2 and WX-3 on a frequency of _____.	156.8, 157.1, 162.55 MHz	162.55, 162.00, 171.5 KHz	162.55, 162.40, 162.475 MHz	2182, 2638, 2670 KHz	
3	3091	D	Which of the following must an ECDIS system be able to perform?	Conversion of "graphical coordinates" to "display coordinates"	Transformation of local datum to WGS-'84 datum	Calculation of true azimuth and distance between two geographical points	All of the above	
3	3092	B	ECDIS must be able to perform all of the following EXCEPT _____.	determine true bearing and distance between two geographical points	determine magnetic compass deviation	transform a local datum to the WGS-'84 datum	convert "graphical coordinates" to "display coordinates"	
3	3093	C	ECDIS must have the capability to preserve the record of the track for the previous _____.	4 hours	6 hours	12 hours	24 hours	

3	3094	A	ECDIS must have the capability to preserve the record of the track for the previous _____.	12 hours	24 hours	48 hours	72 hours	
3	3095	B	ECDIS must have the capability to preserve the record of the track for the previous _____.	6 hours	12 hours	18 hours	24 hours	
3	3101	C	The typical operating range of automatic identification systems (AIS) at sea is nominally _____.	2 nm	8 nm	20 nm	40 nm	
3	3102	B	The typical operating range of automatic identification systems (AIS) at sea is nominally _____.	50-75 nm	20-25 nm	6-8 nm	3-4 nm	
3	3103	B	In general, on how many radio channels will an automatic identification system (AIS) operate?	1	3	4	12	
3	3104	A	In general, on how many radio channels will an automatic identification system (AIS) operate?	3	5	7	9	
3	3105	D	An automatic identification system (AIS) transponder transmits and receives information broadcasts on _____?	10 cm, S-band radar	3 cm, X-band radar	UHF L-band	VHF maritime band	
3	3106	C	What does an automatic identification system (AIS) transponder use to transmit and receive information broadcasts?	3000 Mhz and 9200 Mhz	2182 Khz and 2187.5 Khz	156.525 Mhz, 161.975 Mhz and 162.025 Mhz	1575.42 Mhz and 1227.6 Mhz	
3	3107	A	Automatic identification systems (AIS) are expected to broadcast all of the following information EXCEPT _____.	Port of origin	Name of vessel	Course and speed over ground	Draft of vessel	
3	3108	C	Automatic identification systems (AIS) are expected to broadcast all of the following information EXCEPT _____.	navigation status	ship's heading	port of origin	time stamp	
3	3109	B	While underway, a vessel over 100,000 gross tons with an automatic identification systems (AIS) is expected to broadcast all of the following information every 1 to 10 seconds EXCEPT _____.	rate of turn	name of vessel	navigational status	ship's heading	
3	3110	D	While underway, automatic identification systems (AIS) broadcast all of the following information every 1 to 10 seconds EXCEPT the _____.	speed over ground	latitude and longitude	course over ground	ship's scantlings	
3	3111	D	Which information must automatic identification systems (AIS) automatically provide to appropriately equipped shore stations, vessels and aircraft?	Vessel's type	Vessel's course	Navigational status	All of the above	

3	3112	C	With respect to automatic identification systems (AIS) which of the following information is broadcast every one to ten seconds?	Vessel's draft	Air Draft	Navigational status	Dimensions of vessel	
3	3113	D	With respect to automatic identification systems (AIS), which information is required to be broadcast every 1 to 10 seconds?	Call sign	Vessel's draft	Route plan	None of the above	
3	3114	D	With respect to automatic identification systems (AIS), which information is expected to be broadcast every 1 to 10 seconds?	Rate of turn	Latitude and longitude	Navigational status	All of the above	
3	3115	A	With respect to automatic identification systems (AIS), which information is required to be broadcast every 1 to 10 seconds?	Time stamp	Destination	Location of antenna	None of the above	
3	3116	B	With respect to automatic identification systems (AIS), which information is expected to be broadcast every 1 to 10 seconds?	Name of ship	Ship's heading	IMO number	Vessel's draft	
3	3117	A	With respect to automatic identification systems (AIS), which information is required to be broadcast every 1 to 10 seconds?	Time stamp	IMO number	Type of vessel	Vessel's maximum displacement	
3	3118	B	With respect to automatic identification systems (AIS), which information is required to be broadcast every 1 to 10 seconds?	Call sign and IMO number	Course over ground and MMSI	MMSI number and call sign	Route Plan and navigational status	
3	3119	D	Automatic identification systems (AIS) are required to _____.	provide safety-related information automatically to shore stations, other vessels and aircraft	receive safety-related information automatically from similarly equipped vessels	exchange safety-related information with shore-based facilities	All of the above	
3	3120	D	The short text messaging feature of the automatic identification system (AIS) allows for messages of up to _____.	56 characters	64 characters	128 characters	158 characters	
3	3121	C	The short text messaging feature of the automatic identification system (AIS) allows for messages of up to___.	64 characters	96 characters	158 characters	256 characters	
3	3122	B	The short text messaging feature of the automatic identification system (AIS) allows for messages of up to ___.	96 characters	158 characters	256 characters	384 characters	

3	3123	C	Which of the following statements is TRUE regarding automatic identification systems (AIS)?	AIS is a global tracking system that relies upon INMARSAT C service to communicate vessel position and other safety related information to similarly equipped vessels, aircraft and shore stations within the area.	AIS is a short-range 3 cm X-band radar system that automatically sends a vessel's position and other safety related information to similarly equipped vessels, aircraft and shore stations within the area.	AIS is a short-range VHF-FM system that automatically broadcasts a vessel's position and other safety related information frequently to similarly equipped vessels, aircraft and shore stations within the area.	AIS is a one-way centrally managed system that requires the local VTS to send commands to instruct each vessel to broadcast position and other safety related information to similarly equipped vessels, aircraft and shore stations within the area.	
3	3124	A	Which of the following statements is TRUE regarding automatic identification systems (AIS)?	AIS is a short-range VHF-FM system that automatically broadcasts a vessel's position, course, speed and other safety related information to all those with similar equipment in the area.	AIS is a one-way centrally managed system that requires the local VTS to send commands to instruct each vessel to broadcast position, course, speed and other safety related information to all those with similar equipment in the area.	AIS is a global tracking system that relies upon INMARSAT C service to communicate vessel position, course, speed and other safety related information to all those with similar equipment in the area.	AIS is a short-range 3 cm X-band radar system that automatically sends a vessel's position, course, speed and other safety related information to all those with similar equipment within the area.	
3	3125	B	Which of the following statements is TRUE regarding automatic identification systems (AIS)?	AIS is designed to replace ARPA, maneuvering boards, and visual bearings as a means to ascertain the risk of collision.	AIS provides near real-time information regarding another vessel's speed over ground and heading regardless of visibility.	AIS will not provide information on another vessel if that vessel is indistinguishable in radar sea clutter.	AIS can be relied upon as the sole means to determine course changes due to other AIS equipped traffic.	

3	3126	D	Which of the following statements is TRUE regarding automatic identification systems (AIS)?	AIS will not provide information on another vessel if that vessel is indistinguishable in radar sea clutter.	AIS can be relied upon as the sole means to determine risk of collision and safe speed.	AIS is designed to replace ARPA, maneuvering boards, and visual bearings as a means to ascertain the risk of collision.	AIS provides the other vessel's identity, dimensions and navigational status regardless of visibility.	
3	3127	C	Which of the following statements is TRUE regarding automatic identification systems (AIS) ?	AIS cannot be used to make passing arrangements because the system is not capable of this type of ship-to-ship communications.	AIS cannot be used to make passing arrangements because the ship-to-ship text messaging feature is for emergency use only.	AIS can be used to make passing arrangements via ship-to-ship text messaging but a vessel operator is not relieved from the requirement to sound whistle signals or make arrangements via bridge-to-bridge radiotelephone.	AIS can be used to make passing arrangements via ship-to-ship text massaging thus relieving a vessel operator from making such arrangements via bridge-to-bridge radiotelephone or signaling intent to pass via whistle signals.	
3	3128	B	Which of the following statements is TRUE regarding automatic identification systems (AIS)?	AIS may be used to make passing arrangements via ship-to-ship text messaging thus relieving a vessel operator from sounding whistle signals or making contact via radiotelephone.	AIS may be used to make passing arrangements via ship-to-ship text messaging but a vessel operator is still required to sound whistle signals unless the arrangement is made via radiotelephone.	AIS cannot be used to make passing arrangements because the system does not have the ability to communicate from ship-to-ship in this manner.	AIS cannot be used to make passing arrangements because the use of the ship-to-ship text messaging feature in this way is prohibited.	
3	3129	A	Which of the following statements is TRUE regarding automatic identification systems (AIS) ?	The master may, at his/her discretion, turn off the AIS if he/she believes that it may compromise the safety or security of the vessel.	Under no circumstances shall AIS be turned off while underway as this could endanger the vessel and those around her.	AIS is always required to be operating if the vessel is in or in the vicinity of a VTS area.	AIS is always required to be operating if the vessel is within 100 nautical miles of the coastline.	

3	3130	B	When may the automatic identification system (AIS) be switched off?	At anytime as long as it is properly logged.	At the Master's professional judgment.	Only when the vessel is at anchor or in port.	Under no circumstance.	