

# Published Nautical Queries

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**BOTH INTERNATIONAL AND INLAND: A power-driven vessel is underway and fishing with trolling lines. This vessel \_\_\_\_\_.**

**A. must keep out of the way of sailing vessels**

Correct answer: By definition, this vessel is not “engaged in fishing” because it is using “trolling lines (or other fishing apparatus) which do not restrict maneuverability.” Therefore, the rule for an ordinary power-driven vessel applies, mandating that the vessel trolling keeps clear of the vessel under sail.

**B. must sound a one prolonged, two short blast signal in restricted visibility**

Incorrect: This is the warning signal to be sounded by vessels “engaged in fishing.” Since this vessel is not engaged in fishing, it shall sound a signal of one prolonged blast, while underway and making way through the water, or a signal of two prolonged blasts if not making way.

**C. is the stand-on vessel when overtaking power-driven vessels**

Incorrect: Any vessel overtaking another is a give-way vessel. Therefore, if this vessel were to overtake another, it “shall, so far as possible, take early and substantial action to keep well clear.”

**D. All of the above**

Incorrect: Only one, of the three answers above, is correct.

**Which statement about a simple conic chart projection is TRUE?**

## CONIC PROJECTIONS -

Simple Conic: A single tangent cone is used. The latitude at which the cone is tangent is the "standard parallel".

Secant Conic: The cone is tangent at two latitudes i.e., two standard parallels, cutting a "secant" of the earth.

"Lambert Conformal" Conic: A secant conic in which the spacing of the parallels is altered so that the distortion is the same along these parallels as it is along the meridians.

Polyconic: A series of cones used to eliminate the limitation in latitude that can exist with a secant cone and improve quality of presentation with regard to equal-area.

**A. It is an equal-area projection.**

Incorrect: Polyconic projections are used in higher latitudes where equal-area is desired. However, true equal-area is not possible with any conic projection.

**B. It is a conformal projection.**

Incorrect: Conic projections are not customarily used in practical navigation, except in high latitudes where the distortion in area of a Mercator projection would be extreme and detrimental. In this case, Lambert conformal projections are used.

**C. Meridians appear as curved lines with this type of projection.**

Incorrect: All meridians (lines of longitude), indicated on conic projections, appear as straight lines, converging at the apex of the cone(s).

**D. The scale is correct along any meridian.**

Correct answer: The parallels of latitude are concentric circles and the distance along any meridian between consecutive parallels is correct, in relation to the distance on earth. Since the distortion along the standard parallel (where the cone is tangent to the earth) is minimal, a simple conic projection can be used to map an area having a wide spread of longitude if the spread in latitude is relatively small.

**What shall be conducted during a fire and boat drill?****A. All watertight doors in the vicinity of the drill shall be operated.**

Correct answer: Title 46 of the Code of Federal Regulations, 46 CFR 199.180, requires “checking the operation of watertight doors, fire doors, . . . in the drill area.”

**B. All lifeboat equipment shall be examined.**

Incorrect: During the conduct of the fire & boat drills, lifeboats are required to be “lowered” and their engines “operated”, as per 46 CFR 199.180. All equipment is only required to be “thoroughly inspected” annually, as per 46 CFR 199.190.

**C. Fire pumps shall be started and all exterior fire main outlets opened.**

Incorrect: Although the fire pumps are to be started, 46 CFR 199.180(f)(2)(ii) only requires that “two jets of water” need to be used “to determine that the system is in proper working order.”

**D. All of the above**

Incorrect: Only one, of the three answers above, is correct.

**The color of the flare sent up by a submarine indicating that a torpedo has been fired in a training exercise is \_\_\_\_\_.**

**A. white**

Incorrect: A white flare or star is not a signal that a submarine would send during an exercise. The signal of three white star rockets, fired one minute apart, is a signal from a maritime rescue unit meaning, "You are seen." "Assistance will be given as soon as possible."

**B. green**

Correct Answer: Green or black is used, under training exercise conditions only, to indicate that a torpedo has been fired or that the firing of a torpedo has been simulated. By this signal, merchant ships are to be aware of naval activity in their vicinity.

**C. yellow**

Incorrect: A yellow flare indicates that the submarine is about to come to periscope depth. Upon sighting this flare, naval surface ships participating in the exercise will terminate antisubmarine tactics and all surface ships will clear the vicinity.

**D. red**

Incorrect: A red flare indicates an emergency condition exists with the submarine. The submarine will attempt to surface immediately. In the case of repeated red flares, merchant ships are obligated to notify naval authorities.

**The line of position determined from a sight with an observed altitude (Ho) of  $88^{\circ}45.0'$  should be \_\_\_\_\_.**

**HIGH ALTITUDE SIGHT -**

This sight was made within a few minutes of local apparent noon (LAN) at a location where the sun is crossing the observer's meridian very close to his/her zenith.

**A. reduced to the meridian and plotted as a latitude line.**

Incorrect: Plotting as a latitude line can only be done if the observer is certain that the observation was made when the celestial body was at its maximum altitude.

**B. calculated as a longitude line**

Incorrect: Calculating longitude is an archaic technique that can only be accomplished if the azimuth of the sun (or other celestial body) is known with certainty as being either  $090^{\circ}$  or  $270^{\circ}$ .

**C. plotted by using an intercept from an assumed position**

Incorrect: At this high of an altitude, the azimuth is changing too rapidly to be calculated and plotted accurately by the assumed position method.

**D. plotted as an arc around the GP of the body.**

Correct Answer: The geographic position (GP) of the celestial body (typically the sun) is the point on earth directly beneath it. It is the point from which an observer would have the sun at his/her zenith. In this case, the observer is 75 nautical miles ( $90^{\circ} - 88^{\circ}45.0'$ ) from the sun's GP. The arc of the circle (drawn on the chart with a compass) is a portion of the circle of equal altitude. All observers on the circumference of this circle would observe the sun at an altitude of  $88^{\circ}45.0'$  at this moment in time.

**When fighting a fire in a space containing an IMO “Class 1” hazardous cargo, the most effective fire fighting procedure is to \_\_\_\_\_.**

CLASS 1 HAZARDOUS MATERIAL, i.e., EXPLOSIVES –

This class is defined in the International Maritime Dangerous Goods (IMDG) Code. “Class 1” is similarly defined in 49 CFR 173.50:

”Any substance or article . . . which is designed to function by explosion or which, by chemical reaction within itself, is able to function in a similar manner . . . .”

**A. shut down the ventilation and exclude all air to smother the fire**

Incorrect: This method is effective in fighting a fully engulfed fire by eliminating the supply of oxygen. However, this material may be smoldering and sufficient oxygen may be trapped around the smoldering material, permitting a dangerous situation to continue.

**B. use water from fire hoses or a sprinkler system**

Correct Answer: Water is always best for extinguishing a “general combustible” fire. Given the volatility of this particular material, more than one fire fighting procedure may need to be used. The action indicated in choice “A” or “C” may have to be accomplished first, before a hose team can access the space.

**C. activate the fixed CO2 firefighting system**

Incorrect: Although this is most effective against a visible fire, the extinguishing agent may not be able to penetrate stowed explosives and quell the heat of the smoldering material.

**D. use high-expansion foam**

Incorrect: Foam is ineffective in removing heat. Foam is most effective on fires involving a “flammable liquid” because it is not necessary to penetrate the engulfed liquid, but only to smother the fire by covering the surface.

**The center of floatation of a vessel is \_\_\_\_\_.**

Note: The center of floatation is a point on the waterplane which represents the fulcrum that the vessel pivots about as it trims. As cargo is loaded, the change in trim may be calculated by dividing the moment created by the load by the "moment to trim one inch". Since the shape of the waterplane area of a self-propelled vessel changes with draft, the location of the center of floatation will vary longitudinally as the shape of the plane changes.

**A. the center of volume of the immersed portion of the vessel**

Incorrect: The center of buoyancy is the geometric center of the immersed volume.

**B. the center of gravity of the waterplane**

Correct Answer: This point is the center of gravity of only the waterplane and must not be confused with the (three-dimensional) center of gravity of the vessel. Reference: LaDage and VanGemert, Stability and Trim for the Ship's Officer, Cornell Maritime Press, 1990.

**C. the point at which all the vertical downward forces of weight is considered to be concentrated**

Incorrect: This is the definition of the center of gravity.

**D. the point at which all the vertical upward forces of buoyancy is considered to be concentrated**

Incorrect: This is the definition of the center of buoyancy.

**Vessels should maintain a sharp lookout, especially from December through March, when navigating the right whale's only known calving grounds which lie off the coasts of \_\_\_\_\_.**

Note: In accordance with 50 CFR 224.103, it is unlawful to approach within 500 yards of a right whale. If a right whale is discovered within 500 yards, the vessel must: "Steer a course away from the right whale and immediately leave the area at a slow safe speed."

**A. Nova Scotia**

Incorrect: Northern right whales may be found in the vicinity of Nova Scotia, but only during the summer and autumn months.

**B. Maine and Massachusetts**

Incorrect: This is the locale of the feeding grounds to which most northern right whales migrate for the summer.

**C. Georgia and NE Florida**

Correct Answer: This is the locale of the calving grounds and is designated a "Critical Habitat for Marine Mammals" by 50 CFR 226.203.

**D. California and Mexico**

Incorrect: Northern right whales are not known to inhabit the west coast of North America.

**When entering from seaward, a buoy displaying a composite group (2+1) flashing red light indicates \_\_\_\_\_.**

**A. a junction, with the preferred channel to the left**

Correct Answer: The light is the same color as the topmost band with the preferred channel to the left, hence the secondary channel to the right. This buoy would be painted with three horizontal bands, such as red on top, green in the middle and red on the bottom in this instance.

**B. a sharp turn in the preferred channel, to the right**

Incorrect: The characteristic of the light marking a sharp turn in the channel is quick flashing and would not be that of the composite group (2+1) because the latter characteristic is permitted only on junction buoys. A sharp turn to the right, in either the primary or the secondary channel, would be marked with a red buoy on the inside of the turn and, if lighted, would be red.

**C. the starboard side of the secondary channel**

Incorrect: The starboard sides of the primary and secondary channels are always marked with red buoys. When lighted, the lights will be red, but not with the composite group (2+1) characteristic.

**D. a wreck, to be left on the vessel's port side**

Incorrect: A sunken wreck near either boundary of a buoyed channel will be marked with a lateral mark. If lighted, the light color will be the same as the buoy color, and it would not have the composite group (2+1) characteristic. Therefore, the marker for a wreck on or near the left hand boundary would be green

**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?**

Note: Ideally, the compass would indicate 315° on this heading, but indicates 312° because of the deviation caused by the mass of “soft iron” in the vessel’s structure. Quadrantal spheres are made of “soft iron” and compensate for this type of deviation. The quadrantal spheres can be arranged either fore-and-aft or athwartships, the latter being much more common. The distance that a sphere can be moved “all the way in” (toward the compass) or “all the way out” (away from the compass) is approximately six inches. The required movement of the athwartship spheres is opposite in direction to their being installed fore-and-aft, and the mass of the spheres proportionally affects the amount of compensated deviation.

**A. If the quadrantal spheres are all the way in, replace them with larger ones.**

Incorrect: This would only be true if the spheres were arranged fore-and-aft.

**B. If the quadrantal spheres are all the way out, remove one of the spheres.**

Incorrect: Removing one of the spheres would make the deviation asymmetrical and more detrimental.

**C. If the quadrantal spheres are all the way out, move the spheres in.**

Incorrect: This would only be true if the spheres were arranged fore-and-aft.

**D. If the quadrantal spheres are all the way out, replace them with smaller spheres.**

Correct Answer: The three degrees of easterly deviation exist because the spheres are overcorrecting.

**BOTH INTERNATIONAL AND INLAND: You are underway in low visibility and sounding fog signals. What change would you make to the fog signal immediately upon losing propulsion?**

Not Under Command – Rule 3 (f) defines this vessel as follows: “A vessel which through some exceptional circumstance is unable to maneuver as required by these Rules and is therefore unable to keep out of the way of another vessel.”

**A. Begin sounding two prolonged blasts at two-minute intervals.**

Incorrect: This signal indicates that a power-driven vessel has deliberately stopped its engines and is “making no way through the water.” This vessel is able to continue making way, immediately upon an engine order.

**B. Begin sounding one prolonged blast followed by three short blasts at two-minute intervals.**

Incorrect: This signal is sounded only by a manned vessel being towed.

**C. Begin sounding one prolonged blast followed by two short blasts at two-minute intervals.**

Correct Answer: The moment that propulsion is lost, the vessel is considered to be “Not Under Command” and the vessel is no longer able to maneuver to avoid a collision.

**D. No change should be made to the fog signal.**

Incorrect: One prolonged blast at intervals of not more than two minutes is the signal for a power-driven vessel, underway, and making way through the water, under normal conditions.

**The equipment required to remove an on-deck oil spill on a barge transferring oil must either be carried on board or \_\_\_\_\_.**

**A. on a tug standing by**

Incorrect: Under normal circumstances a tug is not required to stand by during an oil transfer.

**B. available by contract with the shore facility**

Correct Answer: Title 33 CFR 155.215 (c) The oil barge owner or operator may rely on equipment available at the transfer facility receiving from or discharging to the barge, provided the barge owner or operator has prearranged for the use of the equipment by contract or other means approved by the Coast Guard.

**C. kept at the shoreside hose connection during transfer**

Incorrect: There is no requirement for the equipment to be near the hose connection.

**D. kept in a protected shoreside location readily accessible**

Incorrect: Although in practice the equipment may be sheltered, the only requirement is that it must be "ready for immediate use".

**Individual wires, used in systems greater than 50 volts, \_\_\_\_\_.**

The details of "Cable and Wiring Requirements" for "Small Passenger Vessels" are cited in Title 46 CFR 183.340.

**A. should be supported at 24 inch intervals with plastic tie wraps**

Incorrect: Cables and wires are required to be installed with metal supports, spaced not more than 24 inches and using plastic ties only for the purpose of bundling the individual wires.

**B. should never be located in a tank**

Incorrect: Wires may be located in a tank, but only if they are to provide power to equipment installed in the tank, and provided that their insulation is compatible with the fluid in the tank.

**C. must be installed in conduit**

Correct Answer: If individual wires, rather than cable, are used in systems greater than 50 volts, the wires must be placed in a conduit.

**D. All of the above**

Incorrect: As only one of the three answers above is correct, the answer can not be "all."

**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 toward 265°T at 22 knots. What course should you steer, at 12 knots, to have the maximum CPA?**

CPA – Closest Point of Approach

Maximum CPA is the greatest possible distance, from the hurricane's center, at the (maximum) ship's speed of 12 knots.

**A. 219°**

Incorrect: This course will provide a CPA of 59 miles, but not the greatest CPA of the four choices.

**B. 208°**

Correct Answer: This course will provide a CPA of 62 miles, and the maximum possible distance at 12 knots.

**C. 199°**

Incorrect: This course will provide a CPA of 60 miles, but not the greatest CPA of the four choices.

**D. 190°**

Incorrect: This course will provide a CPA of 57 miles, but not the greatest CPA of the four choices.

**Radiation spreads a fire by \_\_\_\_\_.**

**A. transferring heat across an unobstructed space**

Correct Answer: Heat may be transferred through an unobstructed or empty space by radiation.

**B. heated gases flowing through ventilation systems**

Incorrect: Convection is the natural flow induced by the heating of fluids, such as gases, through ventilation ducts, passageways, etc.

**C. burning liquids flowing into another space**

Incorrect: The spread of fire through the movement of burning liquids is accomplished by conveyance of the liquid versus natural heat transfer.

**D. transmitting the heat of a fire through the ship's metal**

Incorrect: Transmission of heat through metal bulkheads and decks is accomplished by conduction.

**Which magnetic compass corrector(s) can be set while the vessel is on a heading of magnetic north or magnetic south?**

**A. Quadrantal spheres**

Incorrect: The quadrantal spheres should only be adjusted while the vessel is on the magnetic intercardinal headings of NE, SE, SW and NW.

**B. Heeling magnet**

Correct Answer: One of the criteria for the vertical height adjustment of a compass' heeling magnet is the vessel's magnetic latitude. It should be lowered – away from the compass card – as the vessel approaches the magnetic equator. Upon crossing the equator, it may be necessary to invert the magnet before raising it.

**C. Flinders bar**

Incorrect: The Flinders bar is normally adjusted in port, after having acquired deviation data from two widely separated magnetic latitudes. If the length of the Flinders bar has to be changed, the deviation on magnetic headings east and west should be checked and any needed adjustment made by adjusting the position of the fore-and-aft magnets.

**D. Fore-and-aft magnets**

Incorrect : Fore-and-aft magnets are to be adjusted while the vessel is on the magnetic cardinal headings of east and west, versus the adjustment of the athwart ship magnets while the vessel is on the magnetic headings of north and south.

**A vessel is signaling to you by flag hoist, and the answer pennant is hoisted close-up. You should \_\_\_\_\_.**

Note: A naval vessel might communicate with a merchant vessel by flag hoist while under the constraint of radio silence. The term "close-up" means that the flag or group of flags is hoisted all the way up to the yard, which is the horizontal spar extending from a mast to which the signaling halyards are rove. In this scenario, the signaling vessel is indicating that signals have been completed.

**A. hoist flag "C"**

Incorrect: The hoisting of flag "Charlie" would indicate an affirmative answer to a question that had been asked by the vessel signaling.

**B. wait for further signals, after a short delay**

Incorrect: If the vessel sending the signal wanted you to wait, it would have hoisted "Alfa-Sierra".

**C. hoist flag "R"**

Incorrect: Although "Romeo" means received, the appropriate reply should indicate your understanding of the fact that the other vessel is finished signaling. See choice "D".

**D. expect no further flag hoists**

Correct Answer: You would hoist your answer pennant close-up to indicate that you understand that the other vessel is finished signaling.

**A jack-up rig, while level in transit at a ten-foot draft, experiences a wind gust, which results in a starboard draft of 11 feet 6 inches. What is the heel?**

Note: Heel is the difference between the port and starboard drafts that is caused by environmental conditions. If a difference between these drafts exists because of off-center weight, it is called list.

**A. 1 foot 6 inches to starboard**

Incorrect: The starboard draft has increased by 1 foot 6 inches due to the wind gust. However, this measurement expresses only half of the heel.

**B. 3 feet to starboard**

Correct Answer: An increase in starboard draft of 1 foot 6 inches implies a decrease in port draft of the same measurement. The difference between these two drafts is 3 feet. The direction of heel is to starboard.

**C. 3 feet to port**

Incorrect: Three feet is the correct amount of heel. However, the heel is to starboard.

**D. 1 foot 6 inches to port**

Incorrect: The heel is twice this amount and in the opposite direction.

**Which vessel is NOT required to have a “Pollution Placard” posted on board?**

Note: The requirement for the placard is stated in 33 CFR 155.450. The placard must be at least 5 by 8 inches and displayed in a conspicuous location. It is required on all US and foreign vessels in US waters, except those less than 26 feet in length and those vessels that not governed by the pollution regulations of 33 CFR 155. The text of the placard is a summary of the Federal Water Pollution Control Act.

**A. 215-foot naval auxiliary vessel**

Correct Answer: Part 155 does not apply to: “A warship, naval auxiliary or other ship owned or operated by a country when engaged in non-commercial service.”

**B. 75-foot towing vessel**

Incorrect: All towing vessels of 26 feet or more in length are required to have the placard.

**C. 50-foot cabin cruiser used for pleasure only**

Incorrect: The placard is required on all pleasure boats of 26 or more feet in length, as well as commercial vessels.

**D. 150-foot unmanned tank barge**

Incorrect: The requirement for the placard is the same for all tank barges; manned or unmanned.

**You must pick up an individual who has fallen overboard from a sailboat. The final approach should be \_\_\_\_\_.**

Note: The recovery of the person is best accomplished if the vessel is positioned such that the person in the water is immediately to leeward (downwind) of the vessel. By so doing, the wind will keep the vessel adjacent to the person being rescued.

Vernacular:

Close-hauled - Pointing as close to the wind as is efficient with the sails hardened right in.

Close Reach - Sailing between close-hauled and a beam reach.

Beam Reach - Running free with the wind on the vessel's beam.

Broad Reach - Sailing between a broad reach and a downwind run.

**A. upwind**

Incorrect: Although it is easier to reduce speed quickly when close-hauled as the vessel under sail approaches the person in the water, it is more difficult to remain alongside the individual. If the sailing vessel loses headway short of the person, wind and sea will set the vessel to leeward of the person.

**B. downwind**

Incorrect: This is the worst approach to make because of the inability to reduce speed without considerable maneuvering.

**C. on a close reach**

Correct Answer: The most effective way to stop a vessel under sail is by "sheeting-out" the sails while on a close reach. This would be done when the vessel is immediately to windward of the person in the water.

**D. on a broad reach**

Incorrect: It is undesirable to approach with the wind from anywhere abaft the beam. The farther aft the wind, the greater the maneuver to stop the vessel will have to be.

**The free surface correction depends upon the dimensions of the surface of the free liquid and the \_\_\_\_\_.**

Note: The height of a vessel's center of gravity is initially determined without considering the effect of free liquid. This correction is the distance by which the vessel's center of gravity is lowered by the effect of the total weight of all free liquid in a tank. This vertical distance is directly proportional to the surface dimensions (length and breadth) of the tank and inversely proportional to the vessel's displacement.

**A. volume of liquid in the tank**

Incorrect: The correction factor is unaffected volume, or, the depth of free liquid in the tank multiplied by the "dimension of the free surface.

**B. displacement of the vessel**

Correct Answer: As noted above, the correction depends upon the dimension of the free surface and is inversely proportional to the vessel's displacement.

**C. location of the tank in the vessel**

Incorrect: The correction factor is unrelated to the location of the tank.

**D. height of the center of gravity of the vessel**

Incorrect: The center of gravity will be raised from wherever it would otherwise be, if there were no free surface effect.

**You are upbound approaching a lock and dam, and see two green lights in a vertical line. This indicates \_\_\_\_\_.**

Locks and Dams – The required lighting is specified in Title 33 CFR, part 207.

**A. the downstream end of an intermediate wall**

Correct Answer: Two green lights mark the downstream end of either the river wall or the intermediate wall, whichever extends farther. The upstream end is required to have three green lights. Green lights signify that the lock is in use.

**B. that a double lockage is in progress**

Incorrect: Double lockage is indicated by an interrupted flashing light on each end of the intermediate wall.

**C. the downstream end of the land wall**

Incorrect: Each end of the land wall is required to be marked by one red light.

**D. the navigable pass of a fixed weir dam**

Incorrect: The assembly that - when removed - allows for a navigable pass through a dam is a "wicket". If the wicket assembly were removed, there would not be a need to operate the lock because the water upstream of the dam would be at the same level as the water downstream. In this case, the lights in choice "A" would be red instead of green. An open weir would not establish a navigable pass and a fixed weir can't be opened.

**The flammable limits of gasoline are 1.3 to 7.6 percent volume of the air. You are testing a tank that contained gasoline by using a combustible gas indicator. Under testing, the tank sample registered 55 on the instrument's dial. What is the concentration of flammable gases?**

*A combustible gas indicator is used for detecting and measuring the level of vapors given off by a flammable liquid relative to the lower explosive limit (LEL). The actual concentration of a specific gas in the space measured by a combustible gas indicator is determined by the meter reading multiplied by the LEL.*

**A. 0.7%**

Correct Answer: The indicated value was calculated by multiplying 55% by the lower explosive limit stated as 1.3.

$$((55\% = .55) \times 1.3 = \underline{.715\%})$$

**B. 4.1%**

Incorrect: The indicated value was calculated by multiplying 55% by the upper explosive limit stated as 7.6.

$$((55\% = .55) \times 7.6 = 4.18\%)$$

**C. 5.5%**

Incorrect: The indicated value was calculated by multiplying 55% by 10, which is a non-factor.

$$((55\% = .55) \times 10 = 5.5\%)$$

**D. 55%**

Incorrect: The indicated value is only the meter reading and must be factored by the multiplier to produce a value of percent volume of air as the answer.

**When bunkering at anchorage, which of the following signals must be displayed?**

The required warning signal for vessels transferring combustible and flammable bulk liquids are cited in 46 CFR 35.30-1(a).

**A. A red flag by day, red light by night**

Incorrect: These are the required warning signals if the vessel is "Fast to a Dock."

**B. A red flag by day, ONLY**

Correct Answer: This flag may be left up at night. There is no requirement to take it down.

**C. A red light by night, ONLY**

Incorrect: A red light is not displayed at anchorage because it could be confused with a vessel's port sidelight.

**D. No signal is required, at anchorage**

Incorrect: Vessels transferring oil are required to display a red flag during daylight while at anchorage.

**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 \_\_\_\_\_.**

**A. azimuthal gnomonic projection**

Incorrect: An azimuthal gnomonic projection is produced when a plane is placed tangent to the earth and all other points are projected geometrically from the center of the earth. All bearings from the point of tangency are represented without distortion and the projection indicates true azimuths. This projection is not centered on a connecting meridian.

**B. Lambert conformal projection**

Incorrect: This projection is formed by using a secant cone to intersect the earth at two standard parallels. The area between the two standard parallels is compressed, and the area beyond is expanded proportionally. When the spacing of the parallels is altered so that the distortion is the same along them as along the meridians, the projection becomes conformal.

**C. transverse Mercator projection**

Correct Answer: This is a special case Mercator projection in which the cylinder is tangent to a meridian. It is used for charts covering a large band of latitude but extending a relatively short distance on either side of the tangent meridian. This display may be used for star charts to show the sky at various seasons of the year.

**D. polyconic projection**

Incorrect: This projection eliminates the latitude limitations of a secant conic projection by using a series of cones with each cone tangent to a parallel of latitude. At the edges of the chart, the area between the parallels is expanded to eliminate gaps. The scale is correct along any parallel and along the central meridian. It is not adaptable for star charts.

**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?**

Basic compass adjusting knowledge:

1. Red indicates the north seeking pole and blue the south seeking pole of a compass.
2. A magnetic north heading on a magnetic compass is 360°.
3. To remove the compass error in this question the compass card must be rotated counter clockwise.

**A. If the blue ends of the magnets are to port, and the athwartship tray is at the top, you should remove some of the magnets.**

Incorrect: Removing magnets from the tray would decrease their combined magnetic field. The blue ends to port would have less attraction on the red north end of the compass and less repulsion on the blue south end of the compass allowing the card to rotate clockwise increasing the error.

**B. If the blue ends of the magnets are to starboard, and the athwartship tray is at the bottom, you should remove some magnets.**

Correct Answer: This would likewise decrease the combined magnetic field of the corrector magnets. However, in this case the blue ends are to starboard. Lessening the attraction of the blue ends on the north end of the compass and decreasing the repulsion on the south end would permit the compass card to rotate counterclockwise, thereby removing the error.

**C. If the red ends of the magnets are to starboard, and the athwartship tray is at the bottom, you should reverse the magnets.**

Incorrect: Previously the red ends on the starboard were repelling compass north and now with the blue ends to starboard the corrector magnets are attracting the north end of the compass. Reversing the field of the corrector magnets would cause the compass card to rotate clockwise, thereby increasing the error.

**D. If the blue ends of the magnets are to starboard, you should raise the athwartship tray.**

Incorrect: Raising the tray would increase the effect of the magnetic field of the corrector magnets on the magnetic compass. This would increase the attraction of the blue ends on the starboard side to the north end of the compass causing the card to rotate clockwise, thereby increasing the error.

**INTERNATIONAL ONLY: If a towing vessel and her tow are severely restricted in their ability to deviate from their course, the towing vessel shall show lights in addition to her towing identification lights. These additional lights shall be shown if the tow is \_\_\_\_\_.**

Note: There is a difference between the International Rules and the Inland Rules in this respect. The International Rule 27(c) requires the restricted in ability to maneuver lights (RAM) only when towing astern.

The Inland Rule 27(c) requires the RAM lights regardless of the position of the tow.

Also note that the International Rule refers to vessels towed in Rule 24(a) only, while the Inland Rule refers to all the vessels towed in Rule 24.

**A. pushed ahead**

Incorrect: These additional lights would be required for a vessel pushing ahead under the Inland Rules.

**B. towed alongside**

Incorrect: These additional lights would be required for a vessel towing alongside under the Inland Rules.

**C. towed astern**

Correct Answer: The International Rule 27(c) states that only towing vessels in Rule 24(a) (towing astern) shall show the additional lights for a vessel restricted in its ability to maneuver when the towing vessel and its tow are severely restricted in their ability to deviate from their course.

**D. All of the above**

Incorrect: Because this question pertains only to the International Rule, choices "A" and "B" are incorrect.

**Your vessel is required to have an impulse-projected line-throwing appliance. The auxiliary line must \_\_\_\_\_.**

Note: Three lines in succession are involved with in the process and firing a line-throwing gun. The “service line” is connected directly to the projectile, such as a quarter-inch (diameter) braided nylon or dacron line. The service line pulls the “auxiliary line,” which, in turn is used to pull the wire cable that is being used as the towline. Logically, the “service line” weight must be kept to a minimum as to not hinder the flight of the projectile, but it must be of sufficient strength to pull a considerable length of “auxiliary line.” Historically, the auxiliary line would have been a three-inch (circumference) manila line, where today, the “auxiliary line” is typically a synthetic material, with a circumference on the order of two inches.

**A. be of a light color**

Incorrect: The auxiliary line may be either of manila or synthetic material. If the line is synthetic, it must be of a color to resist deterioration from ultraviolet light. The colors red, orange, and yellow are more susceptible to deterioration from exposure to ultraviolet light; whereas dark colors, such as those toward the violet end of the color spectrum, are less susceptible to deterioration by ultraviolet light. Therefore, where synthetic materials are used in the line throwing system, the line will be formed of a dark in color.

**B. be 250 meters in length**

Incorrect: The auxiliary line is required to be 450 meters (1,500 feet) in length.

**C. have a breaking strength of 9,000 lbs**

Correct Answer: The auxiliary line is required to have a breaking strength of 40,000 Newtons (9,000 pounds).

**D. be made of synthetic material**

Incorrect: It does not have to be made of a synthetic material, as there is no prohibition in using manila.

**Your vessel is being towed and back-up wires have been installed. Back-up wires carry the towing load in the event that the \_\_\_\_\_.**

Note: Back-up wires are installed in the event of pad eye failure to maintain hold on the towing bridle legs. Each back-up wire connects the shackle and/or last link of chain in each bridle leg (at the towing bitt or padeye) to a bitt or cleat farther aft on the towed vessel. The slack is removed with a turnbuckle or a “steamboat ratchet.” This wire must not be confused with a forward-leading spring line when a barge is being towed “alongside”.

**A. bridle legs part**

Incorrect: The back-up wires take the load only if the pad eye fails or the bitt parts from the deck. If both bridle legs part, the connection to the tow will be lost.

**B. towing bitt or pad eye fails**

Correct Answer: If the towing bitts or pad eyes fail, the back-up wires are to take the load. The back-up wires, having been passed fore and aft several times to a bitt farther aft, are of sufficient strength to take the strain of the tow.

**C. bight ring fails**

Incorrect: The back-up wires take the load only when the pad eye fails. If the bight ring or fish plate fails (device used to connect the bridle to the main tow line), the back-up wires will not be capable in preventing the loss of the tow.

**D. main towing hawser parts**

Incorrect: If the main towing hawser parts, i.e. between the towing vessel and the fish plate, the back-up wires which are not actively involved in this segment of the tow will not prevent this separation.

**When may a seaman on a vessel engaged in foreign trade be paid before earning the wages?**

**A. The seaman may only draw an advance on earned wages.**

Correct Answer: A seaman may only draw an advance on wages already earned. The law states that "a person may not pay a seaman wages in advance of the time when the seaman has earned the wages," but a cash advance on the earned wages may be issued.

**B. Wages up to fifty percent of the seaman's base wage may be advanced upon proof of serious family illness.**

Incorrect: It is unlawful to pay a seaman for wages that he or she has not yet earned and only a maximum of 50% of the earned wages may be advanced, regardless of the personal circumstances, as per Title 46 to the U.S. Code. The seaman may be discharged by mutual agreement with the master. If it is agreed that the seaman must be discharged from the vessel, such as for a serious personal matter, the seaman would be "paid off" in full for the wages earned.

**C. Wages equivalent to three days base wage may be advanced upon arrival in a foreign port.**

Incorrect: There is no provision in the law for the advancement of wages to be based upon a specific period of time such as three days. However, the seaman may be advanced a "draw" of up to 50% of his or her base wage, whether the period is for three days or three months. This law was passed to prevent ship owners from being burdened with indebted seamen and to protect seamen from squandering their wages.

**D. The advance of wages is at the discretion of the Master; however, seaman cannot be in an overpaid status at signoff.**

Incorrect: The law does not allow the Master discretion to extend an advance beyond the wages earned.

**A latitude line will be obtained by observing a body \_\_\_\_\_.**

Note: As a celestial body crosses an observer's meridian, the line of position (LOP) resulting from a sextant observation is a latitude line. The observer's meridian is also known as the principal vertical circle, which is determined to pass through (1) the north and south celestial poles, (2) north and south points of the horizon, and (3) the zenith and nadir. The principal vertical circle intersects the prime vertical circle (at right angles) at the zenith and nadir.

**A. on the prime vertical**

Incorrect: The prime vertical circle passes through the east and west points of the horizon and the zenith and nadir. If a body is observed on the prime vertical circle, the resulting LOP is a longitude line.

**B. on the celestial horizon**

Incorrect: When a body is on the celestial horizon it has a sextant altitude of a fraction of a degree. Therefore, accurate measurement with a sextant would be impossible. If such an observation were to be made, the result would be an (inaccurate) ordinary LOP.

**C. at lower transit**

Correct Answer: Latitude can be determined from a sextant observation when a celestial body transits the lower (or upper) branch of an observer's celestial meridian. The navigational triangle at this time has become a straight line with the elevated pole, the zenith, and body on the same meridian. Latitude can now be determined with simple addition and subtraction. At lower transit, the observed altitude of the body is subtracted from  $90^\circ$  to obtain the zenith distance, which is then subtracted from  $(180^\circ - \text{the declination of the body})$ , giving the latitude at time of transit.

**D. on the Greenwich meridian**

Incorrect: If a navigator observes a body that happens to be on the Greenwich meridian at the moment of observation (Greenwich hour angle equal to  $0^\circ$ ), the result would be an ordinary LOP. If the observer were on the Greenwich meridian, only then would the result be a latitude line. The condition as stated in the question is general, and this specific instance does not adequately answer the question as stated.

**INLAND ONLY: Signals shall be sounded by a power-driven vessel intending to overtake \_\_\_\_\_.**

Note: This question pertains to Inland Rule 34, “Maneuvering and Warning Signals.” The paragraphs of this rule that govern the conduct of power-driven vessels (PDVs) must not be confused with the paragraphs that govern the conduct of all vessels.

**A. any vessel when within half a mile of that vessel**

Incorrect: Maneuvering signals are sounded and acknowledged in an overtaking situation only when both vessels are power-driven and in sight of one another, regardless of distance apart.

**B. another power-driven vessel when both power-driven vessels are in sight of one another**

Correct Answer: A power-driven vessel intending to overtake another PDV shall indicate its intention and await the acknowledgement before overtaking.

**C. any vessel when both are in sight of one another**

Incorrect: Both vessels must be power-driven. For instance, a PDV would not sound a signal when overtaking a sailing vessel. The vessel under power would simply keep well clear of the vessel under sail.

**D. another power-driven vessel only when within half a mile of that power-driven vessel**

Incorrect: The “half mile” rule applies only to PDVs meeting or crossing. In an overtaking situation, maneuvering signals are to be sounded and acknowledged when PDVs are in sight of one another, regardless of distance apart.

**Which type of vessel shall be required to have an emergency towing arrangement fitted at both ends?**

Note: Logically, a large self-propelled vessel is towing-equipped at the stern so it can tow a disabled vessel and at the bow so it can be towed if it should become disabled.

**A. A 30,000 dwt ton oil barge**

Incorrect: An emergency towing arrangement is not required at both ends of a barge, as a barge is not powered and unable to tow another vessel in an emergency.

**B. An 18,000 dwt ton tanker constructed in 1998**

Incorrect: The regulation requiring towing arrangements at both ends of a tanker only applies to tankers over 20,000 deadweight tons.

**C. A 5,000 dwt ton coastal tanker**

Incorrect: Same as for "B." The vessel's area of operation is not a requisite condition for this requirement.

**D. A 22,000 dwt ton tanker operated after January 1, 1999**

Correct Answer: All oil tankers (of at least 20,000 dwt) in service since January 1, 1999 are required to have emergency towing arrangements fitted at both ends of the vessel. (33 CFR 155.235)

Spring-loaded towing hooks are used in towing to \_\_\_\_\_.

**A. absorb and cushion the shocks of towing**

Incorrect: The absorption and cushioning of the shocks of towing is accomplished by having a significant catenary in the towline. This is standard procedure when towing astern at sea.

**B. prevent whiplash**

Incorrect: Whiplash can be prevented by using a heavy nylon “shock line” fitted between the wire towline and the vessel being towed or simply by using heavy nylon for a harbor tow. Nylon is used because of its ability to stretch without sustaining damage. The “shock line” compliments the effect of the catenary.

**C. trip and release when the pull of the towing hawser exceeds a predetermined limit**

Correct Answer: Spring-loaded towing hooks can be used for harbor work, i.e., docking and undocking. The eye of the towline is secured in the hook by fastening the bail over the tip of the hook. This device trips when the strain on it reaches the predetermined limit.

**D. make it easier to attach and release the tow**

Incorrect: It is more time consuming to attach a towline to a spring-loaded towing hook and is not any easier to tie-up or release the tow.

Which tanker discharge pattern would be the safest and most efficient?

Note: Title 33 (part 155) of the Code of Federal Regulations requires a “Transfer Procedures” manual to be available to the Person-in-Charge of the transfer. However, this document is not required to outline any specific loading or discharge pattern for the vessel. Discharging from the forward tanks first will develop a trim by the stern and gravity can now aid the flow of cargo aft. The objective is to minimize the transfer time without compromising safety and pollution prevention criteria. Good seamanship mandates the specific pattern.

**A. Empty the forward tanks and start working aft, emptying each tank in sequence.**

Incorrect: This would cause excessive trim by the stern and excessive stresses on the ship’s structure. False tank levels could be indicated. Depending on the depth of the water, the stern could go aground. The worst-case scenario is the aftermost tanks overflowing.

**B. Start discharging with most of the discharge coming from forward, but include some from midships and after tanks.**

Correct Answer: On a modern tanker where the pumproom is located all the way aft, discharging the vessel in this pattern helps maintain a steady discharge rate and helps minimize the amount of oil left in the tanks. Be aware that some cargo should be discharged from all of the tanks to ensure that the vessel does not become over-trimmed by the stern to avoid the possibility of tank overflow.

**C. Start pumping from forward, midships, and aft with the discharge distributed equally among the tanks.**

Incorrect: This would not be the most efficient since it would not create the desired trim by the stern and is undesirable from a ship’s business point of view. Once the oil level is lowered to the point that it can no longer be pumped by a high-capacity centrifugal pump, you must resort to pumping with a low-capacity positive-displacement pump (or an eductor) which is a slow process known as “stripping.” It’s undesirable to be stripping more than one large tank at a time because of the time factor.

**D. Start pumping from midships and then work forward and aft simultaneously as the midships tank is emptied**

Incorrect: This discharge pattern should be avoided since emptying the midships tanks while leaving the tanks forward and aft full would create extreme “hogging” i.e., the main deck would be under tension and the bottom plating in a dangerous state of compression.

Instructions to the crew in the use of all the ship's lifesaving equipment shall be completed \_\_\_\_\_.

Note: The regulations pertaining to drills involving lifesaving equipment aboard cargo ships are incorporated in Subchapter "W" of 46 CFR: Part 199.180.

**A. before sailing**

Incorrect: Crewmembers are only required to become familiar with the emergency duties assigned to them on the muster list before sailing: 199.180(b)(1). Drills are only required before sailing if a vessel enters service for the first time or when a new crew is engaged: 46 CFR 199.180(b)(3).

**B. within one week of sailing**

Incorrect: Crewmembers joining a vessel for the first time must be instructed in the use of firefighting and lifesaving equipment within two weeks of joining the vessel: 46 CFR 199.180(g)(1).

**C. in one month and repeated quarterly**

Incorrect: Every crewmember must participate in at least one abandon-ship and one fire drill every month. The drills must take place within 24 hours of the vessel leaving port if more than 25% of the crew has not participated in drills aboard that particular vessel in the previous month: 46 CFR 199.180(c)(2). These drills are required to be repeated at least weekly aboard passenger vessels: 46 CFR 199.250.

**D. within any two month period**

Correct Answer: The regulations require that "The crew must be instructed in the use of the vessel's fire-extinguishing and lifesaving appliances and in survival at sea at the same intervals as the drills. Individual units of instruction may cover different parts of the vessel's lifesaving and fire-extinguishing appliances, but all the vessel's lifesaving and fire-extinguishing appliances must be covered within any period of 2 months": 46 CFR 199.180(g)(3).

A towing vessel becomes tripped while towing on a hawser astern. What factor is MOST important when assessing the risk of capsizing?

Note: A tug is in imminent danger of capsizing when she is “tripped”. Tug boats are designed with their after decks as low as possible in order to minimize the effect of the tripping force. A tug could become tripped and rendered unable to maneuver when it is pulled athwartships (sideways) by the force that the towed vessel exerts on the towline. As an example, tripping is more likely to occur to a harbor tug when the vessel it has under tow moves ahead too rapidly under her own power while being assisted in leaving a pier. It could also be caused by the momentum of a seagoing barge carrying it alongside the tug if the tug were to suddenly reduce speed, such as losing propulsion. As the towed vessel comes alongside of the tug the capsizing force would become prominent and would be intensified as the height of the hawser connection on the tug increased.

**A. Length of the towline**

Incorrect: A longer towline will contribute to less maneuverability and greater difficulty in recovering from the tripped condition. However, this is not a significant factor in causing the tripping of a tug.

**B. Height of the towline connection**

Correct Answer: This is a prominent factor that can contribute to the capsizing of a tripped tug. The higher the towline connection is made above the center of flotation (vertical lever-arm), the greater its effect will be on the capsizing moment. The tug will capsize if the connection is high enough to cause the capsizing moment to overcome the righting moment.

**C. Longitudinal position of the towline connection**

Incorrect: The farther aft the longitudinal connection is from the center of flotation, the less effect it will have on transverse stability of a tug. Although the longitudinal position of the towline connection may become a factor, the height of the towline connection is the more critical of these two elements when assessing the risk of capsizing.

**D. Direction of the tripping force**

Incorrect: The horizontal direction of the force increases and will contribute to the danger of capsizing, as the lead becomes more athwartships. Although the factors in “C” and “D” are important considerations in the tripping of a tug, they are not by themselves the most critical with regard to capsizing.

The belt of light and variable winds between the westerly wind belt and the northeast trade winds is called the \_\_\_\_\_.

Note: The earth's atmosphere consists of three major circulation belts per hemisphere that each span  $24^\circ$  -  $26^\circ$  of latitude. They are: the polar easterlies, the westerlies, and the trades. Between these major belts are narrower belts ( $4^\circ$  -  $6^\circ$  of latitude) consisting of light and variable air circulation. They are centered near  $60^\circ$  N&S (low pressure),  $30^\circ$  N&S (high pressure) and near the equator (low pressure). Prevailing winds flow from areas of high pressure to areas of low pressure deflected by Coriolis force.

**A. subtropical high pressure belt**

Correct Answer: This is the narrow belt of high pressure in the vicinity of  $30^\circ$ N, nicknamed the "horse latitudes." This belt is characterized by clear skies with light and variable winds. The weather is generally good because the descending air is warmed and dried as it approaches the earth's surface. There is a corresponding high-pressure belt at latitude  $30^\circ$ S.

**B. intertropical convergence zone**

Incorrect: This is the narrow belt of low pressure in the vicinity of the equator, nicknamed the "doldrums." This belt is characterized by cloudy skies with light and variable winds. The weather is generally poor as a result of ascending warm, moist air, which cools as higher elevations are reached condensing the water vapor to form clouds. The moisture is inevitably released as rain.

**C. doldrums belt**

Incorrect: Same as above for the intertropical convergence zone, which is the technical name for the "doldrums."

**D. polar frontal zone**

Incorrect: There are two of these zones. These narrow belts of low pressure in the vicinity of latitudes  $60^\circ$ N&S are at the limit of the polar easterlies where they meet the westerly wind belt of each hemisphere. The polar fronts are on the side toward the poles of the westerly wind belts while the subtropical high-pressure belts are on the tropical side of the westerly wind belts.

Frames to which the tank top and bottom shell are fastened are called \_\_\_\_\_.

Note: Frames are transverse structural members which act as stiffeners to the shell and bottom plating.

**A. floors**

Correct Answer: The transverse vertical members supporting and compartmenting the double-bottom are called floors. Floors may be solid to form a water and/or oil tight boundary to form double-bottom or inner bottom tanks, or they may have lightening holes to economize weight.

**B. intercostals**

Incorrect: Intercostals are vertical longitudinal parts of the hull's structure and are cut in comparatively short lengths between transverse structural members.

**C. stringers**

Incorrect: Stringers are longitudinal girders or stiffeners bridging transverse beams or frames. Stringers are fore-and-aft strength member girders. They may be used as the keelsons or longitudinals at the bottom of the vessel.

**D. tank top supports**

Incorrect: This term is not part of the nautical nomenclature used in ship construction.

**BOTH INTERNATIONAL & INLAND:** A 200-meter vessel restricted in her ability to maneuver, at anchor, will sound a fog signal of \_\_\_\_\_.

**A. a 5-second ringing of a bell forward and a 5-second sounding of a gong aft at intervals of 1 minute**

Incorrect: This is the fog signal for an idle vessel of 100 meters or more in length, at anchor.

**B. one prolonged followed by two short blasts every 2 minutes**

Correct Answer: This is the correct fog signal for a vessel restricted in her ability to maneuver, underway or at anchor, regardless of her length. Vessels are considered to be restricted in their ability to maneuver, while at anchor, if they are attending to the maintenance of a navigation mark, submarine cable, or pipeline; or if they are engaged in dredging, surveying, or underwater operations. These vessels, while constrained, are required to sound the same fog signal that would be sounded while underway.

**C. one prolonged followed by three short blasts every minute**

Incorrect: The sounding of a fog signal of one prolonged blast followed by three short blasts is required for a manned vessel being towed. If more than one vessel is being towed, the last vessel of the tow, and only if it is manned, will sound this signal. The sounding of this signal will be at intervals not to exceed two minutes, which may include being sounded at more frequent intervals of one minute.

**D. one prolonged followed by three short blasts every 2 minutes**

Incorrect: This is a variation of the statement in "C" above. The indicated fog signal is to be sounded by a manned vessel being towed. When practicable, this signal shall be made immediately after the signal is sounded by the towing vessel. These vessels may sound their signals more frequently than once every two minutes, but the increased frequency is not required.

A vessel is heading magnetic east and its magnetic compass indicates a heading of  $086^\circ$ . Which action should be taken to remove this error during compass adjustment?

Note: To remove this error to enable the compass to indicate magnetic east ( $090^\circ$ ) the “compass card” must be rotated counterclockwise when the “blue south pole” end of a compensating magnet is attracted to the “red north pole” of the compass. The resultant action of the three incorrect choices will cause the “card” to rotate clockwise. The removal of error on east & west headings is accomplished by utilizing the fore-and-aft compensating magnets. These are bar magnets, three inches in length fitted horizontally into a tray installed in the binnacle, and the vertical height of the tray is adjustable.

**A. If the blue ends of the magnets are aft, and the fore-and-aft tray is at the top, you should add some magnets.**

Correct Answer: By adding more magnets to the tray, the magnetic flux of the corrector magnets will be increased. Since the blue poles of the corrector magnets are aft of the center of the compass, it will induce a greater repulsion to the blue-south pole end of the compass on the starboard side of the compass magnet and greater attraction of the red-north pole on the port side of the compass magnet and cause the compass card to rotate counterclockwise as desired.

**B. If the blue ends of the magnets are aft you should lower the fore-and-aft tray.**

Incorrect: By lowering the tray the effect of the magnetic flux is decreased. This reduces the repulsion on the blue-south pole of the compass magnet on the starboard side and the attraction of the red pole on the port side allowing the compass card to rotate clockwise, increasing the compass error and should raise the tray, in this situation.

**C. If the blue ends of the magnets are aft, and the fore-and-aft tray is at the top, you should reverse the magnets.**

Incorrect: Reversing the magnets requires the red ends to be placed aft in the tray. This action will increase the attraction of the blue-south pole on the right (starboard) side and repulse the red-north pole on the left (port) side causing the compass card to rotate clockwise, increasing the compass error.

**D. If the blue ends of the magnets are forward, and the fore-and-aft tray is at the bottom, you should add some magnets.**

Incorrect: This action also strengthens the magnetic field, increasing the attraction on the blue-south pole and the repulsion of the red-north pole, causing the compass card to rotate clockwise and increase the compass error.

**Under the IALA-A Buoyage System, when entering from seaward, a buoy indicating the preferred channel is to starboard may have a \_\_\_\_\_.**

Note: Historically, the International Association of Lighthouse Authorities (IALA) has defined two regions. The IALA-“A” (Region “A”) buoyage system is used throughout Africa, Asia and Europe. The IALA-“B” (Region “B”) system is used throughout the Americas and in the Philippines. In Region “B,” red, even-numbered, “nun” buoys mark the right side of the channel (returning from sea) and thus, the expression, “Red-right-returning.” This is reversed in Region “A,” with green, odd-numbered “nun” buoys marking the right side of the channel (returning from sea). In both regions, red buoys are always even numbered. Preferred channel buoys are identified with red and green horizontal bands. In both systems, the top band color identifies the main channel, and if this buoy is lighted, the color of the light will be the same as the color of the top band.

**A. green light**

Incorrect: If a lighted buoy is used to indicate the main or preferred channel, the color of the light must be the same as the topmost color of the buoy, and in this instance will be red, not green.

**B. long-flashing light characteristic**

Incorrect: If the buoy is lighted, then the light characteristic used to indicate the preferred channel will be composite group-flashing (2+1). This is the only permissible characteristic for indicating the preferred channel. A long-flashing light may be used to indicate a buoy that is otherwise marking the boundary line of the channel.

**C. square topmark**

Correct Answer: A square shape is shown on a paper chart as an icon for a “can” buoy (cylindrical shape) as if the silhouette of the buoy were viewed at the surface of the water. In both systems, if an unlighted buoy is to be used to indicate that the preferred channel is to its right, a “can” buoy will be deployed. The uppermost band and topmark will be red in Region “A.”

**D. conical shape**

Incorrect: If an unlighted buoy is used to indicate the preferred channel, a cone-shaped “nun” buoy always indicates the channel is to port.

You are moving a gas free tank barge to dry dock for repairs. The barge must have onboard a valid \_\_\_\_\_.

**A. Gas Free Certificate**

Incorrect: There is no requirement to gas free the barge before moving it. However, certification of an appropriate gas free environment will be required before work may be performed in a tank.

**B. Certificate of Inspection**

Correct Answer: Since tank barges are inspected vessels, this vessel is required to have a valid Certificate of Inspection at all times.

**C. Permit to Proceed and Hot Work Permit**

Incorrect: A "Permit to Proceed" would be required for an inspected vessel that does not have a valid Certificate of Inspection. A "Hot Work Permit" is not required to move the barge, and is only required before any cutting or welding may begin.

**D. All of the above**

Incorrect: Choice "B" is the only correct answer.

If your vessel has a list to port due to negative GM and off-center weight, the first corrective measure you should take is to \_\_\_\_\_.

Note: A negative metacentric height or “negative GM” is the result of an unstable condition when the center of gravity is above the vessel’s metacenter. Action must be taken to reestablish stability either by removing weight from above the center of gravity or by adding weight below the center (or both) before continuing with cargo operations.

**A. move port-side main-deck cargo to the starboard side**

Incorrect: Moving weight horizontally will initially lessen the list but will contribute nothing to improving the ship’s stability. Because the ship’s center of gravity is above its metacenter, the ship will continue to remain unstable and list suddenly to starboard as soon as the relocated mass passes the vessel’s longitudinal centerline.

**B. fill the starboard double-bottom**

Correct Answer: By filling a double-bottom tank, the ship’s center of gravity is being lowered as weight is being added as low as possible. The most desirable action to take immediately is to ballast all double-bottom tanks that are empty until positive stability is established.

**C. pump water from the port double-bottom to the starboard double-bottom**

Incorrect: This action is essentially the same as that in choice “A”. Shifting weight from port to starboard will not correct the ship’s instability.

**D. pump water from the port double-bottom over the side**

Incorrect: The removal of weight from below the center of gravity will increase instability.

Which type of GPS receiver has at least four channels to process information from several satellites simultaneously?

Note: A navigational receiver aboard a vessel is able to track six to ten GPS satellites simultaneously. There are four satellites, in each of six orbits, broadcasting navigational data. At the time of this writing, the GPS “constellation” consists of 29 satellites because five of the orbits contain a new satellite for the replacement an older one.

**A. Sequential**

Incorrect: The original GPS receivers of the 1980’s were “sequential,” meaning that the receiver had to receive input, then switch reception in sequential order from one satellite to the next as only one channel was available. These receivers were only able to track the satellites “within view” through one receiving cycle at a time, resulting in a “slow” position determination. Because these receivers were hampered by the relatively time-consuming process of switching satellite reception, they were not useful to the aviation industry. The main reason for this initial design was to minimize cost and power consumption during the initial phases of GPS development. Sequential receivers are no longer manufactured.

**B. Continuous**

Correct Answer: The significance of the “four channels” referred to in this question is that this is the minimum number of satellites from which the receiver must acquire information in order to provide the user with an accurate position. Since six to ten satellites are being monitored simultaneously, there is no time delay required to switch from one satellite to another in sequential order. Quality GPS receivers, such as those used for maritime navigation, are now designed with at least twelve channels. It is unnecessary for GPS receivers to be designed with more than twelve channels as no more than ten satellites may be “visible” at any one time.

**C. Multiplex**

Incorrect: Multiplex reception is an improvement over the original sequential receiver. The receiver must still switch from one satellite to another, but now accomplishes this at a much faster rate of (typically) 50 Hertz, versus the 5 to 10 Hertz rate of the original “sequential” receivers. A multiplex receiver acquires navigational data from one satellite for a predetermined “slice of time,” then switches to another satellite, for the same “slice of time,” to receive additional navigational data. If it is able to perform the switching fast enough, the receiver seems to be tracking all of the satellites simultaneously. The hand-held receivers designed in the mid to late 1990’s are multiplex and many of them are still being used.

**D. None of the above**

Incorrect: Choice “B” is correct.

Before operating a non-oceangoing ship greater than 100 gross tons it must have a fixed piping system to discharge oily mixtures ashore. This system must include \_\_\_\_\_.

Note: Oceangoing ships of 400 gross tons and greater are required to have this equipment. (33 CFR 155.360)

**A. approved oily-water separating equipment**

Incorrect: Although many small ships operating on U.S. Inland Waters are equipped with oily-water separators, this equipment is not required on a non-oceangoing vessel.

**B. a fixed or portable containment system at the shore connection**

Incorrect: A containment system is not required at the shore connection to the oily-water discharge piping. This must not be confused with the required containment on deck at the cargo piping shore connection (33 CFR 155.310) or the required containment under the fuel tank vent goosenecks during fueling operations. (33 CFR 155.320)

**C. a spare pump in case the main pump is inoperative**

Incorrect: For the purpose of discharging an oily mixture ashore, only one pump is required, even if “good engineering” recommends two pumps.

**D. at least one outlet accessible from the weather deck**

Correct Answer: The required piping system must have at least one outlet fitted with a stop valve accessible for connecting a discharge hose from the weather deck. This connection must be compatible with the facilities in the vessel’s area of operation. (33 CFR 155.410)

In a tropical cyclone in the southern hemisphere, a vessel hove-to with the wind shifting clockwise would be \_\_\_\_\_.

Note: Wind blows from an area of high pressure toward – or into – an area of low pressure. Because of the effect of the earth's rotation, the wind direction is diverted to the left in the southern hemisphere (right in the northern hemisphere) as viewed from above. Therefore, wind circulates clockwise around a "Low" in the southern hemisphere. Don't confuse this clockwise cyclonic rotation with the direction that the wind is "shifting", as observed from aboard a vessel experiencing the cyclone. Shifting is defined as the gradual, progressive change in wind direction, as the cyclone approaches and passes a vessel. By monitoring this directional change, in addition to monitoring the barometer, mariners can determine their location relative to the cyclone's center. When a vessel is ahead of an approaching storm, the barometer will be falling, and as the storm passes, the barometer will begin rising. The direction of cyclonic rotation can never change from clockwise to counterclockwise, or vice-versa, because a tropical cyclone cannot cross the equator. Often, the best possible action is to hold the ship with its bow into the wind (hove-to) to minimize rolling. The condition to be avoided is having either (port or starboard) side to the wind and seas (broach-to).

**A. ahead of the storm center**

Incorrect: The wind direction will remain constant if the vessel is on the storm's track.

**B. in the dangerous semicircle**

Incorrect: If a ship in the southern hemisphere is in the dangerous semicircle, the wind will be shifting counterclockwise as the storm approaches and passes. This semicircle is the one to the left of the storm's track in the southern hemisphere versus the right in the northern hemisphere. The semicircles are named "dangerous" and "navigable" because of the difference in wind speed between them. For example, if the rotational wind speed is 80 knots, and the storm is moving at 20 knots along its track, the actual wind speeds in the dangerous and navigable semicircles are 100 and 60, respectively.

**C. directly behind the storm center**

Incorrect: The wind direction will remain constant if the vessel is on the storm's track.

**D. in the navigable semicircle**

Correct Answer: If a ship is coming into the navigable semicircle of a westbound approaching storm in the southern hemisphere, it will first encounter a southwesterly wind becoming westerly while the barometer is falling. Then, the wind will become northwesterly and the barometer will begin rising as the storm passes.

**INTERNATIONAL ONLY** If a towing vessel and her tow are severely restricted in their ability to deviate from their course, the towing vessel shall show lights in addition to her towing identification lights. These additional lights shall be shown if the tow is\_\_\_\_\_.

International Rule 27(c): A power-driven vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course shall, in addition to the lights or shapes prescribed in Rules 24(a), exhibit the lights or shapes prescribed in subparagraphs (b)(i) and (ii) of this Rules. Also note, the term SHALL in the rules is prescriptive, requiring the correct application of the Rule. The term MAY is permissive, and is only voluntary under the Rules.

**A. pushed ahead**

Incorrect: International Rule 27(c) limits its application to vessels towing astern, however vessels pushing ahead or towing alongside MAY show the restricted in ability to maneuver lights and shapes in addition to their towing identification lights

**B. towed alongside**

Incorrect: International Rule 27(c) limits its application to vessels towing astern, however vessels pushing ahead or towing alongside MAY show the restricted in ability to maneuver lights and shapes in addition to their towing identification lights.

**C. towed astern**

Correct: International Rule 27(c) states that restricted in ability to maneuver lights and shapes will be in addition to the lights prescribed specifically in Rule 24(a). International Rule 24(a), under Rule 24 *Towing and Pushing*, refers to vessels towing astern only (Rule 24(c) refers to towing vessels pushing ahead or towing alongside). International Rule 27(c) is different from Inland Rule 27(c) in that Inland Rule 27(c) refers to Rule 24 in itself, encompassing all three types of towing functions.

**D. All of the above**

Incorrect: Only answer C is correct and **All of the Above** cannot be accepted.

The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?

Definition of Libration: A real or apparent oscillatory motion, particularly the apparent oscillation of the moon, which results in more than half of the moon's surface being revealed to an observer on the Earth. The appearance results, even though the same side of the moon is always towards the earth, as a result of the moon's period of rotation and revolutions occurring at the same rate as that of the earth.

**A) Libration in latitude**

Incorrect: This libration depends on the variation of the position of the moon's axis in respect to the observer, causing the alternate appearance and disappearance of either pole. Libration in latitude occurs because the axis of rotation is not perpendicular to the plane of the orbit, so an observer in the northern hemisphere can sometimes see over the north pole and under the south pole.

**B) Diurnal libration**

Incorrect: Otherwise known as parallactic libration, this libration brings into view on the edge of the apparent disk of the moon, at rising and setting, some parts not in the average visible hemisphere. The Earth's rotation results in the observer to see slightly different parts of the moon at different times.

**C) Physical libration**

Incorrect: This libration appears as a result of a small pendulum-like rotational oscillation of the moon with respect to its radius vector around its own center of gravity.

**D) Horizontal libration**

Correct: This is not a libration of the Moon.

The fourth type of libration is the Libration of the Longitude. This libration depends is dependent upon the position of the moon in its elliptic orbit, resulting small area near the visible eastern and western edges of the moon to alternately be visible or not visible each month.

**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?**

Note: When computing height of tide correction utilizing Table 3 of the Tide Tables you are not to interpolate.

**A. 0059**

Incorrect.

**B. 0121**

Correct: In the Tide Tables, on November 17<sup>th</sup>, the Sandy Hook reference station numbers contain the low tide correction at 2300 (Nov 16) of -0.1 ft. and the high tide correction at 0518 of 4.5 ft. for a range of tide of 4.6 ft. (4.5'(-) 0.1') and the duration of rise then is 6h-18m (which is the difference between 2300 to 0518). The height correction of 3.5 ft. to safely pass over the obstruction is derived by adding the ship's 27 ft. draft to the required 2 ft. under keel clearance, and then subtracting the charted depth of the obstruction of 25.5 ft. In Table 3 of the Tide Tables, for the range of tide of 4.6 ft. the nearest value of 4.5 ft. is to be used. Then on a horizontal line from 4.5 ft., locate the 1.0 ft. correction to height (the last value being the difference between your required height correction of 3.5 ft. and the nearest hi/low water which is 4.5 ft. at 0518). Upon locating 1.0 ft., proceed in the same column, *Duration of Rise*, to the horizontal intersection of 6h-20m (which is the nearest value to the actual duration of rise of 6h-18m.) At this intersection the time of 2h-07m is indicated as the time from nearest high water. Subtracting 2h-07m from the high tide at 0518 will result in 0311 as the time the vessel will have the minimum required under keel clearance. Then subtracting 1h-50m hours steaming time (dock to the obstruction) from the time of 0311 (clearing the obstruction), will result in 0121 as the earliest possible time a ship may sail.

**C. 0159**

Incorrect.

**D. 0221**

Incorrect.

Regulations concerning the stowage, lashing, and securing of timber deck cargoes aboard general cargo vessels may be found in the \_\_\_\_\_.

**A. International Cargo Bureau Regulations**

Incorrect: The International Cargo Bureau does not develop regulations regarding stowage of cargo but rather the registration, inspection, certification, and documenting of cargo handling equipment.

**B. Load Line Regulations**

Correct: The regulations concerning the securing of timber deck cargoes are located in the Code of Federal Regulations, Title 46 Subchapter E, Load Lines, Subpart 42.25, *Special Requirements for Vessels Assigned Timber Freeboards*.

**C. Rules and Regulations for Cargo and Miscellaneous Vessels**

Incorrect: **The Code of Federal Regulations, Title 46 Subchapter I, *Cargo and Miscellaneous Vessels***, contains regulations on inspection and certification, construction and arrangement, fire protection equipment, and vessel control and miscellaneous systems and equipment.

**D. Vessel's classification society rules and regulations**

Incorrect: Vessel classification societies set standards for ship design, construction, and the "through-life" compliance of rules and regulations promulgated by the international maritime community.

If a passenger vessel navigating the Great Lakes is required to carry 8 ring life buoys, how many of these buoys must have water lights attached?

Note: Code of Federal Regulations, Title 46, Subchapter W, *LIFESAVING APPLIANCES AND ARRANGEMENTS*, Part 199, *LIFESAVING SYSTEMS FOR CERTAIN INSPECTED VESSELS*, sets out the requirements for lifesaving appliances and arrangements for all inspected U.S. vessels except for Offshore Supply Vessels, Mobil Offshore Drilling Units, Small Passenger Vessels, and Sailing School Ships.

**A. 8**

Incorrect: According to 46 CFR Table 199.211 requires a minimum of eight (8) lifebuoys required to be carried on board, however, in 46 CFR 199.70 (a) (3) (ii) not all lifebuoys, and in this case all eight (8) lifebuoys, are not required to have self-ignited lights.

**B. 6**

Correct: Code of Federal Regulations, Title 46, Subchapter W, *LIFESAVING APPLIANCES AND ARRANGEMENTS*, Subpart C, *Additional Requirements for Passenger Vessels*, Part 199.211, *Lifebuoys*, paragraph (b), specifically states that a minimum of six (6) lifebuoys are to have water lights.

**C. 4**

Incorrect: In 46 CFR 199.70 (a) (3) (ii), states that one-half the total number of lifebuoys on the vessel must each be fitted with a self-igniting light. In 46 CFR 199.211 (b) states that vessels under a length of 60 meters must provide a minimum of six lifebuoys with self-igniting lights.

**D. 2**

Incorrect: In 46 CFR 199.70 (a) (3) (iii) the numerical value of two (2) lifebuoys on a vessel must be fitted with a self-activating smoke signal not self-igniting lights.

The Sun's center is coincident with the principal vertical circle when \_\_\_\_\_.

Note: The principal vertical circle is a great circle in the *Horizon System of Coordinates* that passes through the celestial poles and the observer's zenith and nadir. It defines the north and south points of the horizon.

**A. in lower transit**

Correct: The sun's center is coincident with the principal vertical circle when crossing at either the upper or lower branch of the celestial meridian.

**B. the hour circle and prime vertical are coincident**

Incorrect: The prime vertical is perpendicular to the principal vertical circle and defines the east and west points of the horizon. For the sun to be coincident with both the prime and principal vertical circles at the same time it would have to pass through the observer's zenith and this is extremely rare.

**C. the declination is zero degrees and the azimuth is exactly N 135°E**

Incorrect: The sun's azimuth must be either 000° or 180° to be coincident with the principal vertical circle.

**D. the declination is zero degrees and the azimuth is exactly N 135°W**

Incorrect: The sun's azimuth must be either 000° or 180° to be coincident with the principal vertical circle.

What provides little or no indication that a vessel is dragging anchor?

Note: The question is asking which of the following conditions is not always reliable. Hence, each answer indicated as being "Incorrect" to the question as stated, is in fact reliable.

**A. Increasing radar range to a fixed object ahead.**

Incorrect: Repeatedly finding the distance in nautical miles to a fixed object at anchor, such as a day marker or point of land, by a radar range provides a dependable line of position to reference a ship's position. If the distance to the fixed object appreciably increases/decreases, this an excellent indication of dragging anchor.

**B. Drift lead with the line leading perpendicular to the centerline.**

Correct: A drift lead is a heavy lead weight dropped to the sea bottom at the position of the anchor with the line attached to the weight made fast to the vessel. The drift lead is left hanging with a little slack so that if the anchor drags the line tautens and tends forward. Although the drift lead is useful it is not trustworthy in all conditions such as erratic sheering of the ship about the anchor or when there is too much slack in the line. In this example the drift lead is tending "up and down" thus showing no indication of the anchor dragging.

**C. Vibrations felt by placing a hand on the cable.**

Incorrect: A vibration in the anchor cable can develop as the anchor is dragged across the sea bottom and "hops", indicating that the flukes of the anchor are not secured to the sea bottom and that the vessel is dragging the anchor. This becomes apparent in clay or rocky sea bottoms when the flukes of the anchor do not secure the anchor to the sea bottom or as a result of the flukes of the anchor being covered in clay which prevents the flukes of the anchor from re-imbedding into the sea bottom not allowing the anchor to re-secure itself.

**D. Changing bearings to a fixed object abeam.**

Incorrect: When obtaining repeated visual bearings to fixed objects at anchor, the numerical value of the bearing to a fixed object should remain relatively the same to show that the vessel is holding position. Visual bearings on the beam or close to the beam should always be included as a change in the ship's position will be readily apparent. Bearings taken dead ahead/dead astern or broad on the bow or stern will not vary significantly if the vessel moves closer to the object as the vessel drags anchor.

Each distress signal and self-activated smoke signal must be replaced not later than the marked date of expiration, or not more than how many months from the date of manufacture?

Note: Code of Federal Regulations, Title 46, Subchapter Q, *EQUIPMENT, CONSTRUCTION, AND MATERIALS: SPECIFICATIONS AND APPROVAL*, contains the procedures for the approval of equipment and materials that is inspected or tested by an independent laboratory or by the manufacturer of the equipment or material.

A. **48**

Incorrect.

B. **42**

Correct: Code of Federal Regulations, Title 46, Subchapter Q, Part 160, *LIFESAVING EQUIPMENT*, Subpart 160.021, *Hand Red Flare Distress Signals*, 160.021-5, *Labeling and marking*, paragraph (b) and Subpart 160.022, *Floating Orange Smoke Distress Signals (5 Minutes)*, 160.022-5, *Marking*, paragraph (c).

C. **36**

Incorrect.

D. **30**

Incorrect.

Which space(s) is (are) deducted from gross tonnage to derive net tonnage?

Note: Gross Tonnage is the entire internal cubic capacity (volume) of the ship expressed in tons of 100 cubic feet to the ton, except certain spaces which are exempted such as spaces on or above the line of the uppermost complete deck, passenger spaces, open structures, open space between the shelter deck and the next lower deck, and water ballast spaces. Net Tonnage is the total volume of cargo carrying capacity of the vessel.

**A. Companions and booby hatches**

Incorrect: Companions and booby hatches are located on or above the line of the uppermost complete deck and are covers to protect stairways or ladder ways leading to spaces below and, therefore are exempted from gross tonnage calculations. They are not included in a vessel's gross tonnage, and therefore, cannot be a deduction. 46 CFR 69.117(b)(2)

**B. Chart room**

Correct Answer: A deductible space must be used exclusively for, and be reasonable in size for its intended purpose. The chartroom is a space for keeping charts and nautical instruments for plotting the vessel's course and is a space that is included in the calculation of a vessel's gross tonnage. Since a chart room is included in the calculation of the vessel's gross tonnage, it is a deductible space when calculating the net tonnage of a vessel since it does not add to a vessel's cargo carrying capacity. 46 CFR 69.119(e)

**C. Open structures**

Incorrect: Open structures are structures that are located on or above the line of the uppermost complete deck that are under cover (sheltered) but open to the weather, such as a covered exterior passageway , and are exempted from gross tonnage calculations. They are not included in a vessel's gross tonnage, and therefore, cannot be a deduction. 46 CFR 69.117(d)

**D. All of the above**

Incorrect: Answer "B" is the only correct answer to this question.

Which publication would give detailed information on the commercial vessel traffic reporting system for connecting waters from Lake Erie to Lake Huron?

Note: The information required to be passed on to the Vessel Traffic Reporting System (VTRS) includes Radio listening watch, Radiotelephone equipment, English Language, Traffic Reports, Reporting Points, Report of impairment or other hazard and Exemptions.

**A. United States Coast Pilot – Great Lakes #6**

Incorrect: Coast Pilot Great Lakes #6 contains general reference to a VTRS for that area but only identifies 33CFR 162.130 through 162.140 and does not contain the specific information that may be found in 33 CFR regarding the VTRS that encompasses the connecting waters from Lake Erie to Lake Huron.

**B. U.S. Coast Guard Light List – Vol. VII**

Incorrect: Coast Guard Light Lists contain information on Coast Guard maintained aids to navigation such as lighthouses, buoys and day markers. It does not contain any information regarding any VTRS.

**C. Code of Federal Regulations – Title 33**

Correct Answer: Details of the VTRS for connecting waters from Lake Erie to Lake Huron are found in the 33 CFR, Part 162.132.

**D. The appropriate Great Lakes Navigation Chart**

Incorrect: The chart contains a note that identifies VTRS call-in points and direction of vessel movement. It refers to Coast Pilot #6 and Canadian Notice to Mariners for additional information. The chart, however, does not contain detailed information regarding the VTRS and is located only in Title 33.

After an IOPP Certificate is issued to an inspected vessel, how many other surveys of the vessel's pollution prevention equipment are conducted during the period of validity of the certificate?

Note: Each U.S. oil tanker of 150 gross tons and above and each other U.S. ship of 400 gross tons and above; that engages in voyages to ports or off-shore terminals under the jurisdiction of other parties to MARPOL 73/78 must have onboard a valid International Oil Pollution Prevention (IOPP) Certificate. An IOPP Certificate is valid for five years.

**A. None**

Incorrect: Periodic surveys are required throughout the five years the certificate is valid.

**B. One**

Incorrect: During the period of validity of the certificate, one intermediate survey is conducted as close as practicable to 24 months from the date of issuance of the certificate in addition to the two annual surveys.

**C. Two**

Incorrect: During the period of validity of the certificate two annual surveys are conducted as close as practicable to 12 months and 36 months from the date of issuance of the certificate in addition to the intermediate survey.

**D. Three**

Correct: Two annual surveys and one intermediate survey are required during the five year validity period of the IOPP Certificate is required.

**The American Consul has asked the Master of a vessel bound for a port in the U.S. to transport a destitute seaman back to the U.S. Which action may the Master take?**

Note: A consular officer is required to provide, for a destitute seaman of the United States, subsistence and passage to a port of the United States in the most reasonable manner, at the expense of the United States Government and subject to regulations prescribed by the Secretary of State. A seaman, if able, is required to perform duties on the vessel giving the seaman passage in accordance with the seaman's rating.

**A. He is normally required to take the seaman.**

True. A Master is normally required to take a destitute seaman on board at the request of a consular officer and transport the seaman to the United States. The Master may refuse if the destitute seaman causes the vessel to exceed manning according to the vessel's COI or the seaman is known to have contracted a contagious disease.

**B. He may refuse to take the seaman if the seaman has a contagious disease.**

True. A Master is not required to carry a destitute seaman if the seaman is known to have contracted a contagious disease

**C. He may refuse to take the seaman if it will violate the Certificate of Inspection.**

True. A Master is not required to take a destitute seaman if by doing so; the act would exceed the manning allowed on the COI.

**D. All of the above**

Correct Answer: Choices A, B and C are all correct statements

**The operator of each vessel subject to the pollution regulations is NOT required to keep written records of \_\_\_\_\_?**

Note: 33 CFR Part 155 – *OIL OR HAZARDOUS MATERIAL POLLUTION PREVENTION REGULATIONS FOR VESSELS*. These regulations apply to all vessels with exception of warships, naval auxiliary (or other vessels owned or operated by a country when engaged in non-commercial service), or vessels specifically excluded by MARPOL 73/78. There are four required written records: 1) the name of each person designated as a person in charge, 2) the date and results of the most recent equipment inspection, 3) hose information not marked on the hose, and 4) Declaration of Inspection.

**A. the name of each person designated as a person in charge**

Incorrect: This information is required to be made available during an inspection by the Captain of the Port (COTP) or Officer In Charge, Marine Inspection (OCMI) under *Subpart C – Transfer Personnel, Procedures Equipment, and Records, 155.820, Records*.

**B. the date and results of the most recent equipment inspection**

Incorrect: This information is required to be made available during an inspection by the COTP or OCMI under *Subpart C – Transfer Personnel, Procedures Equipment, and Records, 155.820, Records*.

**C. cargoes carried and dates delivered, including destinations**

Correct: This information is not required to be recorded.

**D. hose information not marked on the hose**

Incorrect: This information is required to be made available during an inspection by the COTP or OCMI under *Subpart C – Transfer Personnel, Procedures Equipment, and Records, 155.820, Records*.

**You are loading in the winter in Albany, N.Y., for a voyage to a port governed by the tropical load line mark. Which of the following statements is TRUE? (Hydrometer reading in Albany is 1.000)**

Note: A hydrometer measures the density of the water in which the ship is floating. This is required to calculate your Fresh Water Allowance (FWA), the amount in inches of draft the ship will rise/fall when transiting between fresh and salt water. A reading of 1.000 corresponds to fresh water, a reading of 1.025 corresponds to salt water, and anything in between is considered brackish (combination fresh and salt water). Since the vessel is loading in fresh water and on the Hudson River, the vessel can submerge its Winter mark by its FWA and the amount of fuel to be burned off to reach the sea.

**A. You may not exceed the winter load line mark when you finish loading except for the burnout to sea.**

Incorrect: Title 46 CFR 42.07-10 (c), *Submergence of load line marks*, the vessel in addition to the burnout to sea, exceed the winter mark by the fresh water allowance.

**B. The freshwater allowance and burnout to sea may be subtracted from the required freeboard in Albany.**

Correct Answer: Title 46 CFR 42.07-10 (c) and (d), *Submergence of load line marks*, you may exceed the winter mark by the fresh water allowance and burn out to sea.

**C. You may calculate the burnout necessary to reach the tropical zone and load extra cargo to compensate.**

Incorrect: Title 46 CFR 42.07-10, (d), only allows for burn out to sea, and not the burn out to the tropical zone.

**D. You may load to the winter mark less the freshwater allowance if you will be at the tropical mark upon arrival in the tropical zone.**

Incorrect: Title 46 CFR 42.07-10, (c), states the vessel load to the appropriate load line mark plus the freshwater allowance. Since the vessel is limited by the winter load line and loaded in fresh water, it would be impossible to arrive at the next port at or near the higher tropical mark as an allowance was not computed for the fresh water allowance and the draft would continue to decrease by the fuel burn off and other materials consumed during the transit.

**Which entry on a dangerous cargo manifest concerning the classification of cargo is NOT correct?**

Note: Any carrier who will transport hazardous material is required to prepare a Dangerous Cargo Manifest. The Manifest must list hazardous material in accordance with either the Hazardous Materials Table, 46 CFR 172.101 or by the International Maritime Dangerous Goods Code (IMDG).

**A. Class 8**

Incorrect: A Class 8 Hazardous Material Classification corresponds to Corrosives.

**B. Division 3.1**

Correct: There is no hazardous material that corresponds to Hazardous Material Classification Division 3.1. Numeric decimal numbers identify further subdivision of a classification and a Class 3 Hazardous Material Classification corresponds only to a broad Flammable Liquid classification.

**C. Division 2.3**

Incorrect: Division 2.3 Hazardous Material Classification corresponds to Poison Gas.

**D. All of the above are incorrect.**

Incorrect: This is false since answers A and C are proper Hazardous Material Classifications.