

U.S.C.G. Merchant Marine Exam

Master Less than 100 GRT to Master or Mate
Less than 200 GRT Great Lakes and Inland

Q345 Navigation and Deck General – Safety

(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions.

1. For vessels on international voyages fitted with cargo gear, an initial test of the units under a proof load shall be conducted. Subsequent tests and exams of the same nature shall be carried out at what time interval?
- A. 1 year
 - B. 3 years
 - C. 4 years
 - D. 5 years

Correct answer: D

2. Which of the following statement(s) is/are TRUE regarding twin pedestal cranes?
- A. Each single boom is of the partial-level luffing type and is capable of limited rotation.
 - B. A slew drive system provides for rotation of each crane.
 - C. An independent slew drive system rotates the turntable.
 - D. All of the above

Correct answer: D

3. Which of the following aspects of a flooded space will most adversely affect transverse stability if it is subject to free communication?
- A. On the centerline
 - B. Off-center
 - C. Open to the sea above and below the waterline
 - D. Completely flooded

Correct answer: B

4. In illustration D041DG below, which of the following is the symbol for displacement?
- A. 1
 - B. 2
 - C. 3
 - D. 4

Correct answer: A

5. When bunkering at a dock which of the following signals must be displayed?
- A. A green flag by day, green light by night
 - B. A red flag by day, red light by night
 - C. A yellow flag by day, red light by night
 - D. A red flag by day, a blue light by night

Correct answer: B

6. What does a pyrometer measure on a diesel engine?

- A. Exhaust temperature
- B. Air box pressure
- C. Water pressure
- D. Water temperature

Correct answer: A

7. The greatest effect on stability occurs from loose liquids flowing _____.

- A. in and out of a vessel that is holed in a wing tank
- B. in and out of a vessel that is holed in a peak tank
- C. from side to side in the tanks of the vessel
- D. from fore to aft in the tanks of a vessel

Correct answer: A

8. Which of the following is the most accurate method of determining gyrocompass error while underway?

- A. It cannot be determined accurately at sea due to drift of unknown currents.
- B. Comparing the gyro heading with the magnetic compass heading
- C. Comparing the gyro azimuth of a celestial body with the computed azimuth of the body
- D. Determining from the chart the course made good between celestial fixes

Correct answer: C

9. Which of the following is a requirement of the mechanical disengaging apparatus in a lifeboat?

- A. It must be painted red
- B. It must have an operation instruction placard
- C. The area surrounding the release lever shall be a contrasting light color
- D. All of the above

Correct answer: D

10. The vessel's Emergency Position Indicating Radio beacon (EPIRB) must be tested at which time interval?

- A. Weekly
- B. Monthly
- C. Every 3 months
- D. Every 2 months

Correct answer: B

11. Where is a permanently installed system of gas detection required?

- A. Air locks.
- B. Cargo compressor rooms.
- C. Cargo pump rooms.
- D. All of the above.

Correct answer: D

12. A liferaft which has inflated bottom-up on the water _____.
- A. should be righted by standing on the carbon dioxide cylinder, holding the righting straps, and leaning backwards
 - B. should be righted by standing on the life line, holding the righting straps, and leaning backwards
 - C. will right itself when the canopy tubes inflate
 - D. must be cleared of the buoyant equipment before it will right itself

Correct answer: A

13. What is the reaction of a gyrocompass to an applied force known as?
- A. Gyroscopic inertia
 - B. Earth rate
 - C. Gravity effect
 - D. Precession

Correct answer: D

14. Which of the following describes gyrocompass repeaters which reproduce the indications of the master gyrocompass?
- A. They are accurate only in the Polar regions
 - B. They are accurate only if the vessel is underway
 - C. They are hand operated
 - D. They are accurate electronic servomechanisms

Correct answer: D

15. Why are diesel engines considered safer than gasoline engines?
- A. They can be easily reversed
 - B. They are more heavily built
 - C. They operate at a lower speed
 - D. The fuel used is less volatile

Correct answer: D

16. While proceeding up a channel on course 010° per gyrocompass, you notice a pair of range lights in alignment with the masts of your vessel when viewed forward. A check of the chart shows the range to be 009°T and the variation to be 15°W. If the ship's course is 026°psc, what is the deviation for the present heading?
- A. 2°W
 - B. 2°E
 - C. 1°W
 - D. 1°E

Correct answer: A

17. Which agency must approve the safety equipment on board inspected vessels?

- A. The National Safety Council
- B. The Occupational Safety and Health Administration (OSHA)
- C. The U.S. Coast Guard
- D. The Safety Standards Bureau

Correct answer: C

18. In illustration D033DG below, what is the strake of shell plating indicated by letter H known as?

- A. The bilge strake
- B. The outboard keel plate
- C. The garboard strake
- D. The sheer strake

Correct answer: C

19. When can a work vest be substituted for a lifejacket in the total count of the required lifesaving gear?

- A. When it is approved by the Coast Guard
- B. When stowed away from the ring buoys
- C. When working near or over the water
- D. A work vest may never be counted as a lifejacket.

Correct answer: D

20. Which cargoes require strips of common building lath as dunnage in order to carry away heat generated by the cargo?

- A. Cardboard cartons of shoes
- B. Paper products packaged in rolls
- C. Refrigerated fruit that is ripening
- D. Canned soups packaged in crates

Correct answer: C

21. What certificate verifies that a liquefied gas tanker complies with the requirements with regard to their structure, equipment, fittings, arrangements, and materials?

- A. Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk
- B. Cargo Ship Safety Construction
- C. International Oil Prevention Certificate
- D. Certificate for the Carriage of Noxious Liquid Substances

Correct answer: B

22. Which statement is TRUE regarding the Emergency Position Indicating Radio beacon (EPIRB)?

- A. EPIRBs shall be secured inside the wheelhouse
- B. EPIRBs shall be tested monthly
- C. EPIRBs secured in the emergency locker
- D. EPIRBs are only required to be tested annually

Correct answer: B

23. Your vessel is taking on fuel when a small leak develops in the hose. You order the pumping stopped. Before you resume pumping, you should _____.

- A. Repair the hose with a patch
- B. Place a large drip pan under the leak and plug the scuppers
- C. Notify the terminal superintendent
- D. Replace the hose

Correct answer: D

24. Which defines the function of a spark arrestor?

- A. Prevents sparks from getting out of an engine's exhaust system
- B. It keeps sparks from falling into an open tank
- C. Grounds static electricity reducing chance of explosion
- D. Utilized to secure covers on ullage openings

Correct answer: A

25. What is the effect of heated intake air on a diesel engine that is at normal operating temperature?

- A. Increases engine life
- B. Increases efficiency
- C. Reduces engine horsepower
- D. Increases engine horsepower

Correct answer: C

26. Which of the signals listed is required to be displayed during the day while bunkering?

- A. A red light
- B. A red flag
- C. A yellow flag
- D. A red and yellow flag

Correct answer: B

27. The spin axis of a gyroscope tends to remain fixed in space in the direction in which it is started. How does this gyroscope become north seeking so that it can be used as a compass?

- A. By taking advantage of the property of gyroscopic inertia
- B. By mechanically or electrically applying forces to precess the gyroscope
- C. By starting the compass with the spin axis in a north/south position
- D. The rotation of the Earth (Earth rate) automatically aligns the gyroscope with north, except for speed errors

Correct answer: B

28. Which condition must be met during a stability test on an inspected vessel?

- A. All dunnage, tools, and extraneous items are secured
- B. Water under vessel must be deep enough to prevent grounding
- C. The vessel must be moored snugly
- D. Each tank must be partially full to show it does not leak

Correct answer: B

29. Which of the following statements is/are TRUE in regard to Ro-Ro vessels' spaces which are "specially suitable for vehicles"?

- A. The spaces shall be fitted with an approved fire or smoke detecting system.
- B. The Commandant may permit the installation of an approved water sprinkler extinguishing system.
- C. The spaces shall be fitted with an approved fixed fire extinguishing system.
- D. All of the above

Correct answer: D

30. Quadrantal error in a gyrocompass has its GREATEST effect on which of the following?

- A. When the vessel is on north or south headings
- B. When the vessel is in high latitudes
- C. When the vessel is on intercardinal headings
- D. When the vessel is near the equator

Correct answer: C

31. A thrust bearing is designed to accomplish which action?

- A. To transmit the thrust of the propeller to the vessel
- B. To be placed between the engines and the foundation to absorb the vibration
- C. To transmit the thrust of the engine to the propeller
- D. To absorb the shock of wave pressure at the bow

Correct answer: A

32. The force acting on a single cargo runner which is vertically lifting or lowering a load is greatest when _____.

- A. decelerating when lowering the load
- B. decelerating when raising the load
- C. lowering the load at constant speed
- D. raising the load at constant speed

Correct answer: A

33. In illustration D033DG below, what is a wooden deck installed on top of the plating lettered N known as?

- A. Flooring
- B. Ceiling
- C. Spar decking
- D. Furring

Correct answer: B

34. The wooden plug inserted in the vent of a damaged tank should be removed if you are going to _____.

- A. use the crossover system
- B. pump from the damaged tank
- C. abandon ship
- D. fight a fire

Correct answer: B

35. When launching an open lifeboat by falls, which is TRUE concerning the boathooks?

- A. They must be kept free to be used for fending off
- B. They must be secured amidships where they will not hinder the personnel
- C. They must be used for picking up survivors in the water
- D. They must be secured forward and aft where readily available

Correct answer: A

36. What is the minimum number of fire pumps required on a cargo vessel of 900 GT?

- A. 1
- B. 2
- C. 3
- D. 4

Correct answer: A

37. What is the function of wearing rings found on some centrifugal pumps?

- A. Seal pump shaft against entry of air
- B. Absorb erosion of high-velocity discharge stream
- C. Isolate the outlet side from the inlet side
- D. Dampen the turbulent discharge flow

Correct answer: C

38. Who must approve the vessel's trim and stability booklet?

- A. International Maritime Organization
- B. United States Coast Guard
- C. National Cargo Bureau
- D. Society of Naval Architects and Marine Engineers

Correct answer: B

39. In illustration D041DG below, which symbol is the reference from which the height of the center of gravity is measured?

- A. 5
- B. 4
- C. 3
- D. 2

Correct answer: D

40. What could be a result of insufficient lubrication of lifeboat winches and davits?

- A. Moisture accumulation in winch motor damaging the electrical wiring
- B. Corroding of sheaves on the davits so they will not rotate
- C. Freezing of gears in cold weather
- D. All of the above

Correct answer: D

41. Why are lifeboats usually double-enders?

- A. They can go forward and backward more easily.
- B. They are more seaworthy and less likely to be swamped or broach to.
- C. They require less space for stowing aboard ship.
- D. There is no particular reason for this.

Correct answer: B

42. Your vessel is proceeding down a channel, and you see a pair of range lights that are in line dead ahead. The chart indicates that the direction of this pair of lights is $229^{\circ}T$, and variation is $6^{\circ}W$. If the heading of your vessel at the time of the sighting is 232° per standard magnetic compass, what is the deviation?

- A. $3^{\circ}E$
- B. $9^{\circ}E$
- C. $3^{\circ}W$
- D. $9^{\circ}W$

Correct answer: A

43. According to regulations when, if ever, may cargo hatches on Great Lakes vessels, with more than 6 feet of freeboard, be left uncovered or open while the vessel is being navigated?

- A. At the discretion of the Master, for reasonable purposes
- B. On the authority of the Bosun
- C. The hatch may never be uncovered
- D. If a Mate deems it necessary for ship's maintenance

Correct answer: A

44. Due to the shape of the sea anchor, which is the best way to haul it back aboard?

- A. Hauling in on the anchor line as you would any anchor
- B. Cutting the line, as you cannot haul it back in
- C. Getting all hands to assist hauling it in
- D. Pull its trip line and haul it in

Correct answer: D

45. Which is TRUE concerning the most serious effect trapped air has on a diesel engine jacket water cooling system?

- A. Accelerates corrosion in the system
- B. Forms pockets of high chemical concentrates
- C. Accelerates formation of sludge deposits
- D. Reduces the effectiveness of chromate additives

Correct answer: A

46. Under the Carriage of Goods by Sea Act of 1936, a vessel will be liable for damage to cargo when the damage arises from which situation?

- A. An error in navigation
- B. Lack of ventilation in transit
- C. Perils of the sea
- D. An act of war

Correct answer: B

47. Which term describes the strengthening of damaged bulkheads by using wood or steel?

- A. Blocking
- B. Shoring
- C. Battening
- D. Bracing

Correct answer: B

48. In areas where CO₂ piping is installed, such piping may not be used for any other purpose EXCEPT when used as described in which choice?

- A. Only when used to ventilate the space
- B. Only when in connection with the fire-detecting system
- C. Only when used to run the emergency wiring to the space
- D. Only when in connection with the water sprinkler system

Correct answer: B

49. The Master of a fishing vessel must ensure that each crew member participates in at least one fire drill during which time frame?

- A. A day
- B. Every week
- C. Once a month
- D. Once every 3 months

Correct answer: C

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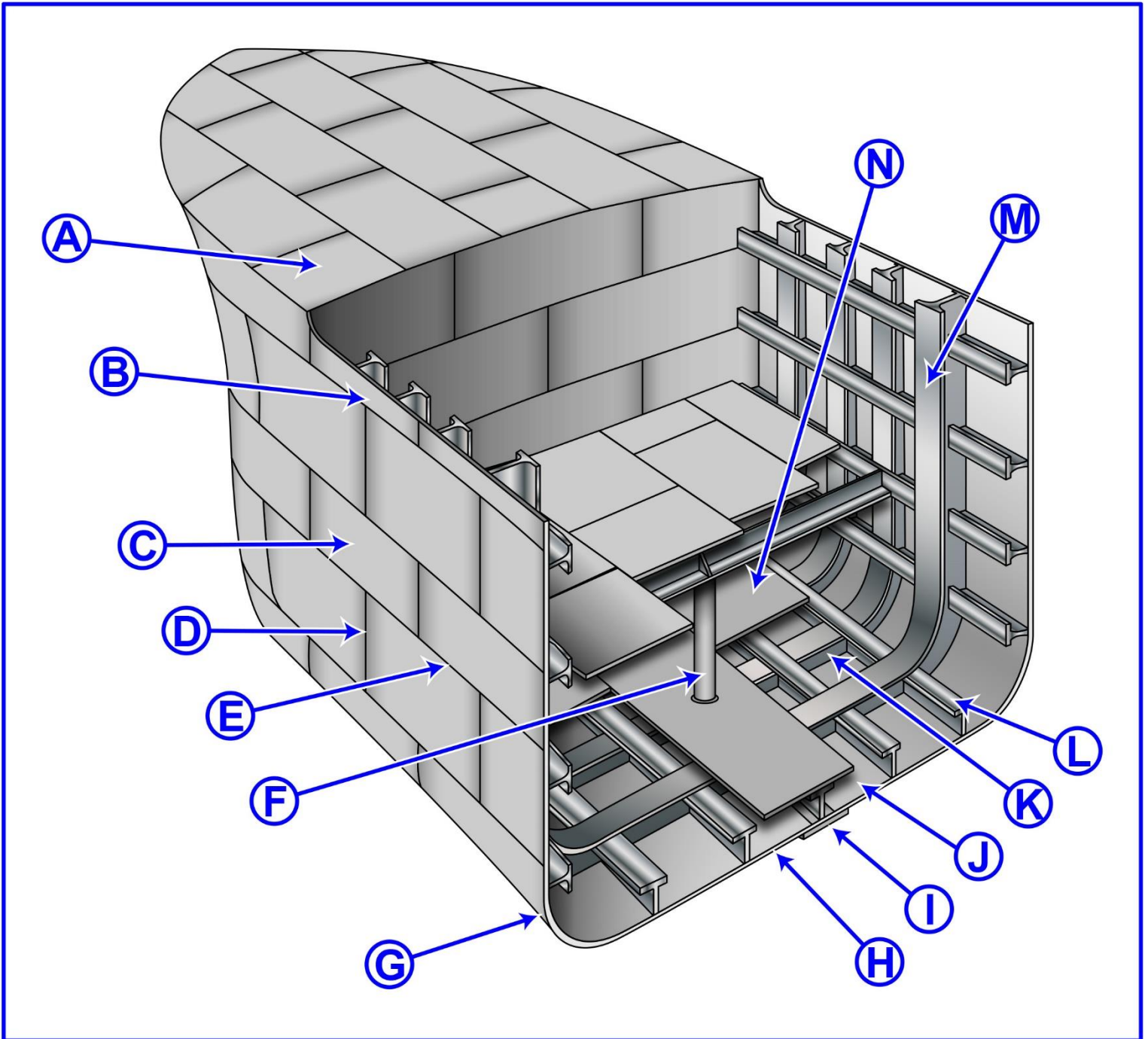
Illustrations: 2

50. How should you warm up a diesel engine that has not been run for some time?

- A. Inject ether into the air intake to shorten warm up time.
- B. Run it at minimum speed until warmed to operating temperature.
- C. Bring it up to top speed immediately and run until warmed up.
- D. Idle for a brief period of time and then warm up at half speed.

Correct answer: D

D033DG

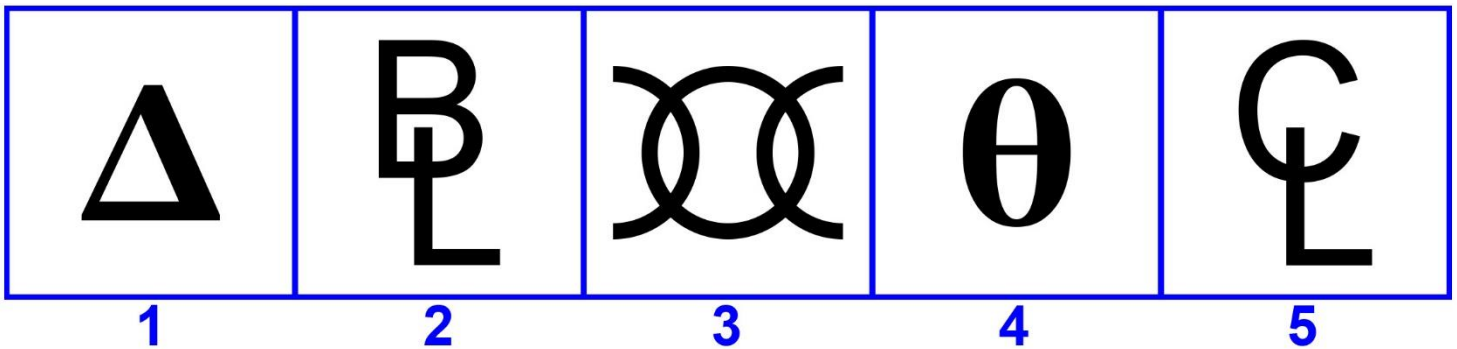


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