U.S.C.G. Merchant Marine Exam

Master/Chief Mate of Unlimited Tonnage

Q103 Deck Safety

(Sample Examination)
Choose the best answer to the following Multiple Choice Questions.

1. Increasing free surfaces has the effect of raising the __________.
   - (A) uncorrected KG
   - (B) metacenter
   - (C) virtual height of the center of gravity
   - (D) metacentric height

   If choice C is selected set score to 1.

2. After an accident the victim may go into shock and die. What should be done to help prevent shock?
   - (A) Slightly elevate the head and feet.
   - (B) Keep the person awake.
   - (C) Give the person a stimulant to increase blood flow.
   - (D) Keep the person lying down and at a comfortable temperature.

   If choice D is selected set score to 1.

3. Which firefighting method is an example of an indirect attack on a fire?
   - (A) Spraying foam on a bulkhead and letting it flow down and over a pool of burning oil
   - (B) Bouncing a straight stream of water off the overhead to create spray effect
   - (C) Flooding a paint locker with CO2 and sealing the compartment
   - (D) Cooling adjacent bulkheads with water to prevent the spread of the fire by conduction

   If choice C is selected set score to 1.

4. In illustration D039SA below, which Fire Control Plan symbol represents the direction of primary means of escape?
   - (A) 58
   - (B) 61
   - (C) 62
   - (D) 63

   If choice B is selected set score to 1.

5. You are releasing carbon dioxide gas (CO2) into an engine compartment to extinguish a fire. In which situation will the CO2 be most effective?
   - (A) The compartment is closed and ventilators are opened
   - (B) The compartment is closed and airtight
   - (C) Air flow to the compartment is increased with blowers
   - (D) The compartment is left open to the air

   If choice B is selected set score to 1.
6. What would most likely prevent a SART’s signal from being detected?

   - (A) Heavy sea swells
   - (B) Signal absorption by the ionosphere
   - (C) The rescue personnel were monitoring the 3-cm radar
   - (D) The rescue personnel were monitoring the 10-cm radar

   *If choice D is selected set score to 1.*

7. You are in a lifeboat in a heavy sea. Your boat is dead in the water and unable to make way. Which action should you take to prevent broaching?

   - (A) Take no action, broaching is recommended in a heavy sea
   - (B) Deploy the sea anchor
   - (C) Put out the sea painter
   - (D) Fill the bottom of the boat with about one foot of water to make it ride better

   *If choice B is selected set score to 1.*

8. You are in a lifeboat broadcasting a distress message. What information would be essential to your rescuers?

   - (A) The nature of the distress
   - (B) Your position by latitude and longitude
   - (C) Number of persons aboard
   - (D) All of the above

   *If choice D is selected set score to 1.*

9. Except in rare cases, it is impossible to extinguish a shipboard fire by __________.

   - (A) removing the heat
   - (B) removing the fuel
   - (C) removing the oxygen
   - (D) interrupting the chain reaction

   *If choice B is selected set score to 1.*

10. Which name is given to the frames to which the tank top and bottom shell are fastened on a vessel?

    - (A) Stringers
    - (B) Tank top supports
    - (C) Intercostals
    - (D) Floors

    *If choice D is selected set score to 1.*
11. Which signaling device(s) are required on inflatable liferafts?

- (A) An air horn
- (B) An oil lantern
- (C) A rocket shoulder rifle
- (D) Hand flares

*If choice D is selected set score to 1.*

12. When patching holes in the hull, how can pillows, bedding, and other soft materials be used?

- (A) As strongbacks
- (B) As shores
- (C) As gaskets
- (D) As wedges

*If choice C is selected set score to 1.*

13. The improper stowage of cargo has caused vessels to have a negative GM. How will a ship in this condition handle in the seaway?

- (A) The vessel will have a snap roll and list to one side only
- (B) The vessel will not have a list but will be slightly down by the head
- (C) The vessel will have a list that may vary from port to starboard
- (D) The vessel will not show any indications of its condition until it capsizes

*If choice C is selected set score to 1.*

14. A man has suffered a burn on the arm. There is a reddening of the skin but no other apparent damage. Using standard MEDICAL terminology, what type of burn is this?

- (A) Superficial burn
- (B) Extremity burn
- (C) Minor burn
- (D) First-degree burn

*If choice D is selected set score to 1.*

15. What are the three most common basic types of diesel engine starters?

- (A) Air, water, electric
- (B) Air, hydraulic, electric
- (C) Air, emergency, hydraulic
- (D) Metered, hydraulic, automatic

*If choice B is selected set score to 1.*
16. What could be a result of insufficient lubrication of lifeboat winches and davits?

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

*If choice D is selected set score to 1.*

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

- (A) Battening
- (B) Shoring
- (C) Blocking
- (D) Bracing

*If choice B is selected set score to 1.*

18. While steering by autopilot you notice that the vessel is deviating from the given course and there is no follow up with corrective rudder action to return to the proper heading. The emergency operating procedure should require you to immediately change operation from __________.

- (A) "hand" to "gyro"
- (B) "gyro" to "hand"
- (C) "gyro" to "control"
- (D) "control" to "hand"

*If choice B is selected set score to 1.*

19. Why are lifeboats usually double-enders?

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

*If choice D is selected set score to 1.*

20. How do you determine the weight of the vessel that is supported by the ground when a vessel has run aground?

- (A) This requires extensive calculation and is usually performed only by a naval architect not by a ship's officer.
- (B) Use the inclining experiment formula and substitute the change of trim for the angle of list.
- (C) Determine the point where aground and the draft at that point, then calculate it using the grounding formula.
- (D) Use the hydrostatic tables and enter with the mean draft before grounding and the mean draft after grounding.

*If choice D is selected set score to 1.*
21. Which type of weld testing can be used to detect internal flaws?

   - (A) Magnetic particle
   - (B) Chemical reaction
   - (C) Dye penetrant
   - (D) Radiographic

   *If choice D is selected set score to 1.*

22. When abandoning ship, after launching the motor lifeboat which is the recommended action to take?

   - (A) Go in one direction until fuel runs out
   - (B) Stay in the immediate area
   - (C) Take a vote on which direction you should go
   - (D) Plot a course for the nearest land

   *If choice B is selected set score to 1.*

23. Combustible gas indicators operate by drawing an air sample into the instrument __________.

   - (A) where it is mixed with nitrogen
   - (B) over an electrically heated platinum filament
   - (C) where its specific gravity is measured
   - (D) where it is ignited by a sparking device

   *If choice B is selected set score to 1.*

24. The searchlight on a survival craft must be capable of operating 3 hours continuously or 6 hours intermittently if operated in which cycles?

   - (A) 5 minutes on and 10 minutes off
   - (B) 10 minutes on and 5 minutes off
   - (C) 15 minutes on and 5 minutes off
   - (D) 15 minutes on and 10 minutes off

   *If choice C is selected set score to 1.*

25. How often are inflatable liferafts required to be overhauled and inspected at a U. S. Coast Guard approved service facility?

   - (A) Every twenty-four months
   - (B) Every eighteen months
   - (C) Every six months
   - (D) Every twelve months

   *If choice D is selected set score to 1.*
26. Aboard a vessel, what does dividing the sum of the longitudinal moments by the total weight yield?

- (A) The vessel’s LCG
  - (B) The vertical moments
  - (C) The inclining moments
  - (D) The righting moments

*If choice A is selected set score to 1.*

27. A vessel can be termed as either tender or stiff in relation to its rolling period. Which of the following would cause a vessel to be tender?

- (A) The ship has excessive weight down low and is trimmed by the head
- (B) The ship has been loaded with excessive weight in the upper decks
- (C) The ship has been loaded with minimal weight in the upper decks
- (D) The ship has excessive weight down low and is trimmed by the stern

*If choice B is selected set score to 1.*

28. The vertical motion of a floating vessel in which the entire hull is lifted by the force of the sea is known by which term?

- (A) Pitch
- (B) Surge
- (C) Heave
- (D) Sway

*If choice C is selected set score to 1.*

29. To prevent loss of stability from free communication flooding you should take which action?

- (A) Close the cross-connection valve between the off-center tanks
- (B) Close any opening to the sea in an off-center tank
- (C) Completely flood high center tanks
- (D) Ballast double bottom wing tanks

*If choice B is selected set score to 1.*

30. What is the most probable cause of reduced capacity in a reciprocating air compressor?

- (A) Leaking air valves
- (B) Faulty unloader
- (C) Carbon on cylinder heads
- (D) Plugged air cooler

*If choice A is selected set score to 1.*
31. You are attempting to take a dead ship in tow. All lines have been passed and secured. How should you get underway?

- (A) Order minimum turns until the towing hawser is taut and then continue at that speed until towing speed is attained.
- (B) If the towline is properly adjusted and weighted you can order slow or dead slow and the towline will act as a spring to absorb the initial shock.
- (C) Gradually apply power until catenary almost breaks the water, but keep the catenary in the water.
- (D) Order minimum turns until the towing hawser is just clear of the water, then reduce speed to that necessary to keep the line clear of the water.

*If choice C is selected set score to 1.*

32. What is the purpose of a striker plate?

- (A) Absorbs machinery vibration
- (B) Provides landing surface for the sounding bob
- (C) Prevents valve stem over-travel
- (D) Provides surface for applying force on machinery

*If choice B is selected set score to 1.*

33. Which term applied to the bottom shell plating in a double-bottom ship?

- (A) The tank top
- (B) The outer bottom
- (C) The bottom floor
- (D) The shear plating

*If choice B is selected set score to 1.*

34. When evacuating a seaman by helicopter lift, which course should the ship take?

- (A) With the wind dead ahead because the helicopter is more maneuverable when going into the wind.
- (B) A course that will keep a free flow of air, clear of smoke, over the hoist area.
- (C) Downwind so that the apparent wind is close to nil.
- (D) A course that will have the hoist area in the lee of the superstructure.

*If choice B is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*
36. You are at sea and have received a General Emergency message announcing the outbreak of war in Europe. You are directed to comply with the instructions in NGA (NIMA) PUB 117, Chapter Eight. Which statement is TRUE?

- (A) You should attempt to submit an AMVER report to NSA.
- (B) You should only enter a port in the danger zone during hours of darkness.
- (C) If on a coastwise voyage along the east coast of the U.S., you should put into the nearest port.
- (D) When over 200 miles from a port in the danger zone, you should not darken ship.

*If choice A is selected set score to 1.*

37. You are tending the lifeline of a person who has entered a compartment wearing a breathing apparatus. How many tugs of the lifeline mean “Are you all right”?

- (A) One
- (B) Two
- (C) Three
- (D) Four

*If choice A is selected set score to 1.*

38. Which statement concerning solid floors is TRUE?

- (A) They are built of structural frames connected by angle struts and stiffeners, with flanged plate brackets at each end.
- (B) They may have lightening, limber, or air holes cut into them.
- (C) They are lighter than open floors.
- (D) They must be watertight.

*If choice B is selected set score to 1.*

39. What is the correct interpretation of the flag hoist G, 4, 2, 1, first substitute.

- (A) G4214
- (B) G4211
- (C) G421G421
- (D) G421G

*If choice A is selected set score to 1.*

40. One method of controlling rats on vessels is by rat-proofing. Rat-proofing is accomplished by

- (A) keeping foods protected and avoiding the accumulation of garbage
- (B) eliminating possible living spaces for rats when the ship is constructed
- (C) trapping and/or poisoning the rats
- (D) installing rat guards on the mooring lines when in port

*If choice B is selected set score to 1.*
41. Which of the following statements is FALSE concerning the proper procedure in handling a fire hose?

- (A) The fire hose should be partially charged before deploying it from the fire station.
- (B) A 1½ inch hose should be deployed with a minimum of a nozzlemann and hoseman.
- (C) Back-up hosemen should be positioned wherever the hose makes a significant turn.
- (D) The nozzlemann should always hold the nozzle with one hand on top, to prevent kickback.

*If choice A is selected set score to 1.*

42. How is the external flotation bladder of an immersion suit inflated?

- (A) It inflates by seawater bleeding into the inflation bladder and reacting with a chemical.
- (B) It is inflated by a small CO2 bottle that is manually tripped.
- (C) It is inflated by blowing through an inflation tube.
- (D) It is inflated by a small CO2 bottle that is automatically tripped when the front zipper is at the top of the zipper track.

*If choice C is selected set score to 1.*

43. If a vessel is sagging, what kind of stress is placed on the sheer strake?

- (A) Tension
- (B) Thrust
- (C) Compression
- (D) Racking

*If choice C is selected set score to 1.*

44. Which term is given to the joint formed when two steel shell plates are placed longitudinally side to side?

- (A) Strake
- (B) Bevel
- (C) Seam
- (D) Bond

*If choice C is selected set score to 1.*

45. Which statement about the free surface correction is TRUE?

- (A) The correction decreases as the draft increases
- (B) It is added to GM at light drafts and subtracted at deep drafts.
- (C) It is decreased if the slack tank is below the KG of the vessel.
- (D) It is increased if the slack tank is not on the centerline.

*If choice A is selected set score to 1.*
46. When must the Sailing Plan, required by vessels participating in AMVER, be sent?

- (A) Within 24 hours of departure
- (B) Prior to departure
- (C) Within a few hours before or after departure
- (D) Within 12 hours of departure

*If choice C is selected set score to 1.*

47. Distress signals may be __________.

- (A) sound signals
- (B) red flares
- (C) smoke signals
- (D) Any of the above

*If choice D is selected set score to 1.*

48. What is one of the main purposes of the inclining experiment on a vessel?

- (A) To locate of the center of gravity of the light ship
- (B) To locate the position of the center of buoyancy
- (C) To determine the maximum load line
- (D) To locate the position of the metacenter

*If choice A is selected set score to 1.*

49. Your vessel has a midships engine room and the cargo is concentrated in the end holds. Which is TRUE of your vessel?

- (A) The vessel is sagging with compressive stress on main deck
- (B) The vessel is hogging with compressive stress on main deck
- (C) The vessel is sagging with tensile stress on main deck
- (D) The vessel is hogging with tensile stress on main deck

*If choice D is selected set score to 1.*

50. In illustration D039SA below, which Fire Control Plan symbol represents an emergency fire pump?

- (A) 19
- (B) 21
- (C) 22
- (D) 54

*If choice A is selected set score to 1.*
51. If the situation arose where it became necessary to tow a disabled vessel, which statement is TRUE concerning the towing line?

- (A) There should be a catenary so the line dips into the water.
- (B) The towing line should be taut at all times between the vessels.
- (C) The towing line between the two vessels should be clear of the water.
- (D) None of the above.

*If choice A is selected set score to 1.*

52. When a vessel signals her distress by means of a gun or other explosive signal, the firing should be at approximately which time intervals?

- (A) 1 hour
- (B) 3 minutes
- (C) 10 minutes
- (D) 1 minute

*If choice D is selected set score to 1.*

53. What is the difference between net tonnage and gross tonnage?

- (A) Net tonnage is tonnage of cargo compared to tonnage of whole ship.
- (B) There is no difference.
- (C) Net tonnage is the net weight of the ship.
- (D) Net tonnage is the gross tonnage less certain deductions for machinery and other areas.

*If choice D is selected set score to 1.*

54. Which term is given to the upward slope of a vessel’s bottom from the keel to the bilge?

- (A) Rake
- (B) Camber
- (C) Rise of floor
- (D) Sheer

*If choice C is selected set score to 1.*

55. Your vessel has been taking on water but now the breached hole has been repaired. Which effects can the flooding have on your vessel’s GM?

- (A) Flooding will always increase GM
- (B) Flooding can either increase or decrease GM
- (C) Flooding will neither increase or decrease GM
- (D) Flooding will always decrease GM

*If choice B is selected set score to 1.*
56. You are reading the draft marks as shown in illustration D032DG. The top 2 inches of number "9" are visible above the waterline. What is the draft?

- (A) 8'-10"
- (B) 9'-02"
- (C) 9'-04"
- (D) 9'-08"

*If choice C is selected set score to 1.*

57. Which of the following requires the vessel to be dry-docked?

- (A) Verification of load line measurements
- (B) Inspection of the double bottoms
- (C) Inspection of the tail shaft liner
- (D) Cleaning of the hull

*If choice C is selected set score to 1.*

58. What can be determined about an injury from examining the condition of a victim's pupils?

- (A) The degree of vision impairment
- (B) The degree of pain being suffered
- (C) Whether or not the victim's blood pressure is normal
- (D) Whether or not the brain is functioning properly

*If choice D is selected set score to 1.*

59. If one hydraulic pump of an electro-hydraulic steering unit fails, the vessel's steering can initially be maintained by activating which of the following units?

- (A) The accumulator
- (B) The standby pump
- (C) The trick wheel
- (D) The telemotor

*If choice B is selected set score to 1.*

60. What is the proper name given to a deck fitting, used to secure line or wire rope, consisting of a single body with two horizontally protruding horns?

- (A) A set of bitts
- (B) A capstan
- (C) A bollard
- (D) A cleat

*If choice D is selected set score to 1.*
61. You must evacuate a seaman by helicopter lift. Which statement is TRUE?

- (A) The ship should be stopped with the wind off the beam while the helicopter is hovering overhead.
- (B) The hoist line should be slack before the basket or stretcher is hooked on.
- (C) The basket or stretcher must not be allowed to touch the deck.
- (D) The tending line of the litter basket should be secured to the ship beyond the radius of the helicopter blades.

If choice B is selected set score to 1.

62. In illustration D033DG below, what is the area indicated by the letter G is known as?

- (A) turn of the bilge
- (B) stringer plate
- (C) entrance
- (D) garboard

If choice A is selected set score to 1.

63. When collecting condensation for drinking water, which is TRUE?

- (A) It should be strained through a finely woven cloth
- (B) Only condensation on the bottom of the canopy should be collected
- (C) Chlorine tablets should be used to make it drinkable
- (D) A sponge used to mop up and store condensation must be kept salt free

If choice D is selected set score to 1.

64. You are on watch and see a man fall overboard. Which man overboard turn should NOT be used in this situation?

- (A) Scharnow
- (B) Racetrack
- (C) Single turn
- (D) Williamson

If choice A is selected set score to 1.

65. In illustration D039SA below, what is the fire control plan symbol represented by number (16)?

- (A) Foam nozzle
- (B) Space protected by foam
- (C) Foam monitor (gun)
- (D) Foam station

If choice B is selected set score to 1.
66. What is the function of the bypass valve on the self-contained breathing apparatus?
   
   o (A) When pressure in the apparatus exceeds 7 psi above atmospheric pressure, the valve opens to release pressure.
   o (B) The valve opens in excessive heat to release the oxygen in the bottle and prevent the bottle from exploding.
   o (C) The valve reduces the high pressure in the bottle to about 3 psi above atmospheric pressure.
   • (D) In the event of a malfunction in the equipment, the valve can be operated manually to give the wearer air.

   If choice D is selected set score to 1.

67. For the purpose of training and drills, if reasonable and practicable, how frequently should rescue boats be launched with their assigned crew?
   
   o (A) Twice a year
   o (B) Once a week
   o (C) Once a year
   • (D) Once a month

   If choice D is selected set score to 1.

68. Which class of fire is an oil fire classified?
   
   o (A) A
   • (B) B
   o (C) C
   o (D) D

   If choice B is selected set score to 1.

69. When flammable liquids are handled in a compartment on a vessel, the ventilation for that area should be ________.
   
   o (A) operated intermittently to remove vapors
   • (B) operated continuously while vapors may be present
   o (C) available on standby for immediate use
   o (D) shut down if an explosive mixture is present

   If choice B is selected set score to 1.

70. How should you warm up a diesel engine that has not been run for some time?
   
   o (A) Run it at minimum speed until warmed to operating temperature.
   o (B) Inject ether into the air intake to shorten warm up time.
   o (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.

   If choice D is selected set score to 1.
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