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. 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) Determine the point where aground and the draft at that point, then calculate it using the grounding formula.
   - (C) Use the hydrostatic tables and enter with the mean draft before grounding and the mean draft after grounding.
   - (D) Use the inclining experiment formula and substitute the change of trim for the angle of list.

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

2. Which statement is TRUE concerning lifeboat gripes?
   - (A) They may be adjusted by a turnbuckle.
   - (B) They are normally used only with radial davits.
   - (C) They must be released by freeing a safety shackle.
   - (D) They should not be released until the boat is in lowering position.

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

3. 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) "control" to "hand"
   - (C) "gyro" to "control"
   - (D) "gyro" to "hand"

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

4. Your vessel has just run aground. Which of the follow would be one of the first actions you should take in this situation?
   - (A) Apply RPM to one propeller
   - (B) Sound all tanks
   - (C) Back the engines full astern
   - (D) Pump out all double bottoms

   *If choice B is selected set score to 1.*
5. What is another name for the garboard strake?

- (A) A strake
  - (B) Z strake
  - (C) Side keel plate
  - (D) Stringer plate

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

6. Transverse stability calculations require the use of which information?

- (A) Hydrostatic curves
  - (B) General arrangement plans
  - (C) Cross-sectional views of the vessel
  - (D) Hog or sag calculations or tables

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

7. What is the minimum number of deck officers, able seaman or certificated persons required to command each lifeboat on a vessel in ocean service?

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

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

8. Keel scantlings of any vessel are greatest amidships because __________.

- (A) of maximum longitudinal bending moments
  - (B) resistance to grounding is at a maximum amidships
  - (C) of severest racking stresses
  - (D) connections between forebody and afterbody are most crucial

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

9. Which type of weld testing can be used to detect internal flaws?

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

*If choice B is selected set score to 1.*
10. While underway in thick fog you are on watch and hear the cry "man overboard". Which type of maneuver should you make?

- (A) figure eight turn
- (B) Round turn
- (C) Racetrack turn
- (D) Williamson turn

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

11. What is an advantage of water fog or water spray over a straight stream of water in fighting an oil fire?

- (A) It requires less water to remove the same amount of heat.
- (B) It gives more protection to fire fighting personnel.
- (C) It has a smothering effect on the fire.
- (D) All of the above

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

12. If the metacentric height is small, which is TRUE of the vessel?

- (A) The vessel will be tender
- (B) The vessel will have large angles of roll
- (C) The vessel will be stiff
- (D) The vessel will have a quick and rapid motion

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

13. Distress signals may be __________.

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

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

14. Which is TRUE if passengers are on board when an abandon ship drill is carried out?

- (A) The passengers should stay out of the way and do what they want
- (B) The passengers should take part in the drill
- (C) Passenger should go to their quarters during drills
- (D) The passengers should just watch

*If choice B is selected set score to 1.*
15. 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 tensile stress on main deck
- (B) The vessel is sagging with compressive stress on main deck
- (C) The vessel is hogging with compressive stress on main deck
- (D) The vessel is hogging with tensile stress on main deck

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

16. Which action would you take to get low-velocity fog from an all-purpose nozzle?

- (A) Attach an applicator to the nozzle in place of the bronze nozzle tip
- (B) Attach an applicator to the solid stream outlet on the nozzle
- (C) Attach the bronze nozzle tip to the fog outlet of the nozzle
- (D) Simply move the handle to the vertical position on the nozzle

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

17. What is the purpose of a check valve?

- (A) Permits flow in one direction only
- (B) Passes air but not liquid
- (C) Passes liquid but not air
- (D) Regulates liquid flow

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

18. Which type of EPIRB must each ocean-going ship carry?

- (A) Class A
- (B) Class B
- (C) Category 1
- (D) Class C

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

19. 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 gross tonnage less certain deductions for machinery and other areas.
- (D) Net tonnage is the net weight of the ship.

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

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

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

21. What is the principle treatment of sunstroke?

- (A) Cooling, removing to shaded area, and lying down
- (B) Drinking ample amounts of ice water
- (C) Bathing the patient with rubbing alcohol
- (D) Give Stimulants to increase blood flow

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

22. In illustration D039SA below, which Fire Control Plan symbol represents an international shore connection?

- (A) 54
- (B) 51
- (C) 49
- (D) 53

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

23. Which factor has the greatest effect on the value of the free surface correction?

- (A) The width of the tank
- (B) The specific gravity of the liquid in the tank
- (C) The length of the tank
- (D) The draft of the vessel

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

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

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

*If choice B is selected set score to 1.*
25. You hear the general alarm and ship’s whistle sound for over 10 seconds. What does this signal mean?

- (A) Dismissal from fire and emergency stations
- (B) Man overboard
- (C) Fire and emergency
- (D) Abandon ship

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

26. When does a cylinder in a two cycle engine experience combustion?

- (A) Every fourth stroke
- (B) Twice each crankshaft revolution
- (C) Every other crankshaft revolution
- (D) Once each crankshaft revolution

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

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

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

28. Which defines the function of a spark arrestor?

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

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

29. In illustration D016SA below, what number indicates the frapping line?

- (A) 1
- (B) 2
- (C) 3
- (D) 4

*If choice B is selected set score to 1.*
30. What is the proper direction of flow through a globe valve when the valve is installed to be in a normally open position?

- (A) From above the seat
- (B) Direction is unimportant
- (C) From below the seat
- (D) Depends on seat configuration

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

31. Regulations define the bulkhead deck as __________. (subdivision and stability regulations)

- (A) the uppermost deck to which transverse watertight bulkheads extend
- (B) the uppermost complete deck
- (C) any deck extending from stem to stern
- (D) the lowermost deck to which transverse watertight bulkheads extend

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

32. You are fighting a fire in a watertight compartment using hoses and salt water. Why may the stability of the vessel be reduced?

- (A) Due to progressive downflooding
- (B) Reduction of water in the storage tanks
- (C) An increase in free surface which reduces the metacentric height
- (D) A reduction of KG to the minimum allowable

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

33. How does foam extinguish an oil fire?

- (A) By cooling the oil below the ignition temperature
- (B) By increasing the weight of the oil
- (C) By removing the fuel source from the fire
- (D) By excluding the oxygen from the fire

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

34. You are proceeding to the area of reported distress. When you arrive at the reported position, the vessel in distress is not sighted. What type of search should be conducted?

- (A) Expanding square
- (B) Track crawl
- (C) Parallel track search
- (D) Sector search

*If choice A is selected set score to 1.*
35. During a medivac one of the crew members requires assistance to be hoisted to the aircraft. Which of the following would be used to accomplish this task?

- (A) a double lift
- (B) a single rescue litter
- (C) a rescue net
- (D) a rescue basket

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

36. An unstable upright equilibrium position on a vessel means that the metacenter is in which location?

- (A) On the longitudinal centerline
- (B) Lower than the center of gravity
- (C) At the same height as the center of gravity
- (D) Higher than the baseline

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

37. Which term is used to describe the horizontal port or starboard movement of a vessel?

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

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

38. You must shore up the collision bulkhead due to solid flooding forward. The bulkhead approximates an inverted triangle. Where should the center of pressure of the shores on the bulkhead be located?

- (A) Evenly over the surface of the bulkhead
- (B) At the bottom of the bulkhead
- (C) Approximately two-thirds of the way up the bulkhead
- (D) Approximately halfway up the bulkhead

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

39. In illustration D039SA below, what is the fire control plan symbol represented by number (64)?

- (A) Inertial gauge
- (B) Inert gas installation
- (C) Infrared gas detector
- (D) Dry chemical installation

*If choice B is selected set score to 1.*
40. Preventer bars are fitted on lifeboat releasing gear to prevent what from happening?

- (A) The operation of the release lever until the boat is waterborne
- (B) Accidental unhooking when the falls become slack
- (C) The falls from unhooking if the releasing gear is operated accidentally
- (D) The falls from rehooking after they have been released

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

41. Which organization reviews and approves a vessel’s fire control plan?

- (A) Maritime Administration
- (B) Vessel’s classification society
- (C) International Maritime Organization
- (D) U.S. Coast Guard

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

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

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

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

43. Which extinguishing agent will cool down a heated bulkhead in the least amount of time?

- (A) Dry chemical
- (B) Water fog or spray
- (C) Steam
- (D) Water stream

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

44. In general, how often are sanitary inspections of passenger and crew quarters made aboard passenger vessels in river service?

- (A) Once each day
- (B) Once each week
- (C) Once each month
- (D) Once each trip

*If choice C is selected set score to 1.*
45. Which item are the terms "pintle" and "gudgeon" associated with?

- (A) The steering engine
- (B) The anchor windlass
- (C) A jumbo boom
- (D) The vessel's rudder

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

46. What is NOT a function of the steam drum of a marine water-tube boiler?

- (A) Serves as a reservoir of boiler feed water
- (B) Collects steam exhausted from the turbines
- (C) Receives saturated steam from the generating tubes
- (D) Holds internal fittings for separation of moisture from steam

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

47. When a ship is abandoned and there are several liferafts in the water, which task must be done to aid in your rescue?

- (A) Transfer all the injured to one raft
- (B) Transfer all supplies to one raft and post a guard
- (C) Separate the rafts by drifting away to increase chances of detection
- (D) Secure the rafts together to keep them from drifting apart

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

48. When attempting to enter a compartment containing a fire, which method of applying water is best?

- (A) High-velocity fog stream directed toward the overhead
- (B) Sweeping the compartment with a fog stream
- (C) Straight stream directed into the center of the fire
- (D) Solid stream directed toward the overhead

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

49. What is the lifesaving signal indicating "You are seen - Assistance will be given as soon as possible"?

- (A) Vertical motion of a white light or flare
- (B) Firing of a green star signal
- (C) Vertical motion of white flags
- (D) None of the above

*If choice D is selected set score to 1.*
50. What should you do if you have transmitted a distress call a number of times on channel 16 and have received no reply?

- (A) Key the microphone several times before transmitting again.
- (B) Repeat the message using any other channel on which you might attract attention.
- (C) Report the problem to the head electrician.
- (D) Turn up the volume on the receiver before transmitting again.

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

51. In illustration D033DG below, what is the structural member indicated by the letter I?

- (A) The center pillar
- (B) The keel
- (C) A girder
- (D) The garboard strake

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

52. Landing a lifeboat through surf should only be done if absolutely necessary. What should be done with the lifeboat rudder if this type of landing is unavoidable?

- (A) the rudder should be unshipped, utilizing the sea anchor to provide better control
- (B) the rudder should remain in position, it can aid in the propulsion of the lifeboat
- (C) the rudder should remain in position, it provides the best control of the lifeboat
- (D) the rudder should be unshipped, a steering oar will provide better maneuverability

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

53. What is the primary use of antiseptics?

- (A) To prevent infection
- (B) To increase blood circulation
- (C) To reduce inflammation
- (D) To speed healing

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

54. How should the number "3" be pronounced when spoken on the radiotelephone?

- (A) BEES-SOH-THREE
- (B) TAY-RAH-TREE
- (C) TRIC-THREE
- (D) NUM-ERL-THREE

*If choice B is selected set score to 1.*
55. What is the function of wearing rings found on some centrifugal pumps?

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

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

56. For an upright vessel, draft is the vertical distance between the keel and which other item?

- (A) The freeboard deck
- (B) The amidships section
- (C) Plimsoll mark
- (D) The waterline

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

57. Which of the following medical conditions has symptoms of: burning pain with redness of the skin, an irritating rash, blistering or loss of skin and or toxic poisoning?

- (A) Asphyxia
- (B) Dermatitis
- (C) Chemical burn
- (D) Athlete’s foot

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

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

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

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

59. When launching an inflatable liferaft, which is TRUE concerning the operating cord?

- (A) It should be fastened to some substantial part of the vessel
- (B) It should be fastened to the raft container
- (C) It should be secured to the hydrostatic release
- (D) It should not be fastened to anything

*If choice A is selected set score to 1.*
60. Which term is given to the fittings used to secure a watertight door?

- (A) Clasps
- (B) Dogs
- (C) Latches
- (D) Clamps

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

61. The result of two forces acting in opposite directions and along parallel lines, is an example of what type of stress?

- (A) Tensile
- (B) Shear
- (C) Compression
- (D) Strain

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

62. Which is TRUE concerning a fuel-air mixture below the lower flammable limit?

- (A) The mixture is too lean to burn
- (B) The mixture is too cool to burn
- (C) The mixture is too dense to burn
- (D) The mixture is too rich to burn

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

63. You have a large, broken-down vessel in tow with a wire rope and anchor cable towline. Both vessels have made provision for slipping the tow in an emergency; however, unless there are special circumstances __________.

- (A) they should slip simultaneously
- (B) the towing vessel should slip first
- (C) the vessel towed should slip first
- (D) either vessel may slip first

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

64. All of the following are recognized distress signals under the Navigation Rules EXCEPT which signal?

- (A) Red flares
- (B) The repeated raising and lowering of outstretched arms
- (C) A green star signal
- (D) Orange-colored smoke

*If choice C is selected set score to 1.*
65. The pillar shape that gives the greatest strength for the least weight is the __________.
   - (A) Circular type pillar
   - (B) "H" Beam pillar
   - (C) "I" Beam pillar
   - (D) Solid octagonal pillar

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

66. While in dry dock your vessel will be belt-gauged. This process involves __________.
   - (A) measuring the thickness of the tail shaft liner
   - (B) testing and examining the anchor cables for defective links
   - (C) drilling or sonic-testing the hull to determine the plate thickness
   - (D) taking the vessel's offsets to check for hull deformation

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

67. You are approaching a ship that is broken down and are preparing to take her in tow. BEFORE positioning your vessel to pass the towline, which action should you take?
   - (A) Secure the bitter end of the towing hawser to prevent loss if the tow is slipped
   - (B) Install chafing gear on the towline
   - (C) Compare the rate of drift between the ships
   - (D) Have traveling lizards rigged to guide the towline while it is paid-out

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

68. A vessel trimmed by the stern has a __________.
   - (A) sheer
   - (B) drag
   - (C) list
   - (D) set

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

69. Which term defines the lowest temperature required to cause self-sustained combustion of a substance independent of any outside source of ignition?
   - (A) Explosive range
   - (B) Flash point
   - (C) Ignition temperature
   - (D) Combustion temperature

   *If choice C is selected set score to 1.*
70. A magnesium fire is classified as class __________.

- (A) A
- (B) B
- (C) C
- (D) D

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