

U.S.C.G. Merchant Marine Exam
Second/Third Mate Unlimited Tonnage
Q112 Deck Safety
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. Transverse frames are more widely spaced on a ship that is designed with the _____.
- (A) centerline system of framing
 - (B) transverse system of framing
 - (C) isometric system of framing
 - (D) longitudinal system of framing

If choice D is selected set score to 1.

2. What is the minimum number of people required to safely handle a 1-1/2 inch fire hose?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4

If choice B is selected set score to 1.

3. Your vessel displaces 641 tons. The existing deck cargo has a center of gravity of 3.6 feet above the deck and weighs 36 tons. If you load 22 tons of ground tackle with an estimated center of gravity of 2.0 feet above the deck, what is the final height of the CG of the deck cargo?
- (A) 2.33 feet
 - (B) 2.55 feet
 - (C) 2.77 feet
 - (D) 2.99 feet

If choice D is selected set score to 1.

4. Which statement about the free surface effect is TRUE?
- (A) The free surface effect usually increases at angles of heel above 25°.
 - (B) The effect increases if the tank is off the centerline.
 - (C) It has the same affect on initial stability whether the tank is 75% full or 25% full.
 - (D) The effect can be reduced by shifting weights vertically.

If choice C is selected set score to 1.

5. A crew member has just fallen overboard off your port side. Which action should you take?
- (A) Immediately put the engines astern.
 - (B) Immediately put the rudder over hard right.
 - (C) Immediately put the rudder over hard left.
 - (D) Wait until the stern is well clear of the man and then put the rudder over hard right.

If choice C is selected set score to 1.

6. Which is the MOST important consideration for a tank vessel?

- (A) The stress on the hull
- (B) GM
- (C) The vertical center of gravity
- (D) The longitudinal center of gravity

If choice A is selected set score to 1.

7. When abandoning ship and jumping into the water from a substantial height without a life jacket, you should _____.

- (A) dive head first, using your hands to break the surface of the water
- (B) jump feet first, covering your nose and mouth with one hand and grasping the opposing upper arm with the other
- (C) jump feet first, holding your knees to your chest
- (D) hold your arms firmly at your sides and jump feet first

If choice B is selected set score to 1.

8. The SS AMERICAN MARINER has drafts of: FWD 22'-03", AFT 25'-05". Use the white pages of the Stability Data Reference Book to determine the drafts if you ballast the forepeak with 97 tons of seawater.

- (A) FWD 22'-11.3", AFT 25'-00.3"
- (B) FWD 22'-11.9", AFT 24'-11.7"
- (C) FWD 23'-00.5", AFT 24'-11.1"
- (D) FWD 22'-10.7", AFT 25'-00.9"

If choice C is selected set score to 1.

9. You are calling another vessel by radiotelephone using the International Code of Signals. He responds with the words "Alpha Sierra". This indicates that _____.

- (A) you should proceed with your message
- (B) you should send your message in plain language
- (C) he cannot accept traffic immediately
- (D) you should send your message in International Code

If choice C is selected set score to 1.

10. You are having a Coast Guard inspection. All carbon dioxide fire extinguishers aboard will be _____.

- (A) weighed
- (B) checked for pressure loss
- (C) discharged and recharged
- (D) sent ashore to an approved service facility

If choice A is selected set score to 1.

11. When possible, what is the FIRST step in fighting an engine fuel-pump fire which results from a broken fuel line?

- (A) Check the spread of the fire with foam.
- (B) Cast the barge off the wharf.
- (C) Close the fuel line valve.
- (D) Secure all engine room doors, hatches, and vents.

If choice C is selected set score to 1.

12. Once you have established the daily ration of drinking water in a survival situation, how should you drink it?

- (A) Small sips at regular intervals during the day
- (B) The complete daily ration at one time during the day
- (C) Small sips only after sunset
- (D) One-third the daily ration three times daily

If choice D is selected set score to 1.

13. Topside icing that blocks freeing ports and scuppers _____.

- (A) will cause water on deck to pocket and increase stability
- (B) increases the effective freeboard and increases the wind-heel affect
- (C) is usually below the center of gravity and has little effect on stability
- (D) may decrease stability by increasing free surface effect due to water on deck

If choice D is selected set score to 1.

14. If heavy smoke is coming from the paint locker, the FIRST firefighting response should be to _____.

- (A) secure the ventilation
- (B) release the CO2 flooding system
- (C) open the door to evaluate the extent of the fire
- (D) enter and use a portable extinguisher

If choice A is selected set score to 1.

15. The fittings used to secure a watertight door are known as _____.

- (A) latches
- (B) dogs
- (C) clasps
- (D) clamps

If choice B is selected set score to 1.

16. Which of the following is considered the normal operational range from a SART unit to a surface vessel?

- (A) unlimited
- (B) 5-10 miles
- (C) 75-100 miles
- (D) 50-75 miles

If choice B is selected set score to 1.

17. A thrust block is designed to _____.

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

If choice C is selected set score to 1.

18. In nautical terminology a "dog" is a _____.

- (A) heavy steel beam
- (B) wedge
- (C) device to force a water tight door against the frame
- (D) crow bar

If choice C is selected set score to 1.

19. You are underway in the Gulf of Mexico when you hear a distress message over the VHF radio. The position of the sender is about 20 miles south of Galveston, TX, and you are about 80 miles ESE of Galveston. What action should you take?

- (A) Immediately acknowledge receipt of the distress message
- (B) Do not acknowledge receipt because you are too far away to take action
- (C) Do not acknowledge receipt until other ships nearer to the distress have acknowledged
- (D) Defer acknowledgment for a short interval so that a coast station may acknowledge receipt

If choice D is selected set score to 1.

20. When hoisting a boat on gravity type davits using an electric motor driven winch, the davit arms should be brought up to which position?

- (A) Until just before they make contact with the limit switch, and then hand cranked to their final position
- (B) To the bar stop, and then hand cranked to their final position
- (C) To their final position with the winch operating at slow speed
- (D) To the embarkation deck, and then hand cranked to their final position

If choice A is selected set score to 1.

21. Which statement is TRUE concerning carbon dioxide?

- (A) It is an inert gas.
- (B) It is lighter than air.
- (C) It is used mostly on class A fires.
- (D) All of the above

If choice A is selected set score to 1.

22. Fixed CO2 systems would not be used on crew's quarters or _____.

- (A) spaces open to the atmosphere
- (B) the engine room
- (C) cargo holds
- (D) the paint locker

If choice A is selected set score to 1.

23. During an abandonment or drill, the first person to arrive at the survival craft should _____.

- (A) open the doors and start the sprinkler system
- (B) open the doors and prepare the craft for boarding
- (C) pass out food and water to personnel
- (D) activate the emergency release handle

If choice B is selected set score to 1.

24. Inflatable liferafts must be overhauled and inspected at a U. S. Coast Guard approved service facility every _____.

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

If choice D is selected set score to 1.

25. The brickwork surrounding the firebox of a boiler is known as _____.

- (A) fire plate
- (B) the waterwall
- (C) the screen wall
- (D) refractory

If choice D is selected set score to 1.

26. When the height of the metacenter is greater than the height of the center of gravity a vessel has which type of stability?

- (A) Stable
- (B) Neutral
- (C) Unstable
- (D) Negative

If choice A is selected set score to 1.

27. What is the generally accepted method of determining whether the atmosphere within a cargo tank is explosive, too rich, or too lean to support combustion?

- (A) Use an explosimeter.
- (B) Send a gas sample ashore for laboratory analysis.
- (C) Use the open flame test on a small sample that has been taken from the tank.
- (D) Enter the tank with an oxygen analyzer.

If choice A is selected set score to 1.

28. The term displacement refers to which of the following?

- (A) cubic capacity of a vessel
- (B) gross tonnage of a vessel
- (C) number of long tons of water displaced by a vessel afloat
- (D) deadweight carrying capacity of a vessel

If choice C is selected set score to 1.

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

If choice C is selected set score to 1.

- 30.** You are on a ship that has broken down and are preparing to be taken in tow. You will use your anchor cable as part of the towline. Which statement is TRUE?
- (A) The anchor cable should be veered enough to allow the towline connection to be just forward of your bow.
 - (B) The anchor cable should be veered enough to allow the towline connection to be immediately astern of the towing vessel.
 - (C) The anchor cable should be led out through a chock, if possible, to avoid a sharp nip at the hawsepipe lip.
 - (D) The strain of the tow is taken by the riding pawl, chain stopper, and anchor windlass brake.

If choice D is selected set score to 1.

- 31.** For small angles of inclination, if the KG were equal to the KM, then the vessel would have _____.
- (A) negative stability
 - (B) maximum stability
 - (C) neutral stability
 - (D) positive stability

If choice C is selected set score to 1.

- 32.** Which of the following is NOT required to be part of a vessel's Fire Control Plan?
- (A) Ventilation fan control
 - (B) Ventilation fan capacity
 - (C) Ventilation dampers
 - (D) Ventilation fan location

If choice B is selected set score to 1.

- 33.** Which statement about firefighting foam is TRUE?
- (A) To be most effective, foam should be directed at the base of the fire.
 - (B) Foam is most effective on burning liquids which are flowing.
 - (C) Foam can ONLY be used to extinguish class A fires.
 - (D) Foam conducts electricity.

If choice D is selected set score to 1.

- 34.** In illustration D014SA below, which item number correctly identifies the floating sheath knife?
- (A) 4
 - (B) 8
 - (C) 22
 - (D) 23

If choice D is selected set score to 1.

35. The time required to incline from port to starboard and back to port again is called _____.

- (A) initial stability
- (B) range of stability
- (C) rolling period
- (D) inclining moment

If choice C is selected set score to 1.

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

- (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.

37. The backup system on an electric start survival craft is a _____.

- (A) hydraulic system
- (B) hand crank
- (C) pneumatic system
- (D) spare battery

If choice B is selected set score to 1.

38. Your vessel has been damaged and is partially flooded. The first step to be taken in attempting to save the vessel is to _____.

- (A) pump out the water inside the vessel
- (B) plug the hole(s) in the outer shell
- (C) calculate the free surface effect and lost buoyancy to determine the vessel's stability
- (D) establish flooding boundaries and prevent further spread of flood water

If choice D is selected set score to 1.

39. The lifeline of a life float or buoyant apparatus shall _____.

- (A) have a seine float in each bight unless the line is an inherently buoyant material
- (B) be at least 3/8 inch diameter and properly secured around the sides and ends of the device
- (C) be festooned in bights not longer than three feet long
- (D) All of the above

If choice D is selected set score to 1.

40. 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, you must _____.

- (A) install chafing gear on the towline
- (B) have traveling lizards rigged to guide the towline while it is paid-out
- (C) compare the rate of drift between the ships
- (D) secure the bitter end of the towing hawser to prevent loss if the tow is slipped

If choice C is selected set score to 1.

41. The groups "AA" and "AB" are used in conjunction with what other group in signaling by flashing light?

- (A) CS
- (B) WA
- (C) RQ
- (D) RPT

If choice D is selected set score to 1.

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

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

If choice A is selected set score to 1.

43. Channel 13 (156.65 MHz), the designated bridge-to-bridge channel, may NOT be used to _____.

- (A) exchange navigational information between a vessel and a shore station
- (B) exchange operating schedules with company dispatcher
- (C) exchange navigational information between vessels
- (D) conduct necessary tests

If choice B is selected set score to 1.

44. When the alarm bell sounds on a positive-pressure, self-contained breathing apparatus, how long will reserve air supply last?

- (A) About 8-10 minutes
- (B) About 4-5 minutes
- (C) About 18-20 minutes
- (D) About 12-15 minutes

If choice B is selected set score to 1.

45. The time required to incline from bow down to stern down and return to bow down again is called _____.

- (A) pitching period
- (B) amplitude moment
- (C) inclining moment
- (D) rolling period

If choice A is selected set score to 1.

46. One of your crew members falls overboard from the starboard side. You should IMMEDIATELY _____.

- (A) apply left rudder
- (B) throw the crew member a life preserver
- (C) position your vessel to windward and begin recovery
- (D) begin backing your engines

If choice B is selected set score to 1.

47. The percentage of the total surface area or volume of a flooded compartment that can be occupied by water caused by damage is known as _____.

- (A) one compartment standard
- (B) form gain
- (C) center of flotation
- (D) permeability

If choice D is selected set score to 1.

48. A spark arrestor _____.

- (A) secures covers on ullage openings
- (B) grounds static electricity
- (C) keeps sparks from falling into an open tank
- (D) prevents sparks from getting out of an engine's exhaust system

If choice D is selected set score to 1.

49. Which kind(s) of broadcasts are available through Safety NET?

- (A) MSI and messages to pre-defined groups of subscribers
- (B) Coastal weather broadcasts
- (C) MSI and vessel traffic lists
- (D) Hourly NOAA weather broadcasts from the NWS

If choice A is selected set score to 1.

50. Lifesaving regulations in Subchapter W require that a fire drill include _____.

- (A) starting the fire pumps
- (B) checking arrangements for abandon ship
- (C) checking the operation of watertight doors
- (D) All of the above

If choice D is selected set score to 1.

51. The signal given to commence lowering the lifeboats is _____.

- (A) specified on the muster list (station bill)
- (B) 3 short blasts of the ship's whistle
- (C) 3 long blasts of the ship's whistle
- (D) 1 long blast of the ship's whistle

If choice A is selected set score to 1.

52. A sweep oar is an oar that is _____.

- (A) longer than the others used for steering
- (B) generally shorter than the others and is used to steer with
- (C) is longer than the others and is used as the stroke oar
- (D) is raised in the bow of the boat for the steersman to steer by

If choice A is selected set score to 1.

53. The SS AMERICAN MARINER is ready to bunker with drafts of FWD 20'-04", AFT 23'-06". After all bunkers are on board, soundings indicate the tonnages shown in table ST-0172 below. Use the white pages of The Stability Data Reference Book to determine the free surface correction.

- (A) 0.62 foot
- (B) 0.80 foot
- (C) 0.85 foot
- (D) 0.99 foot

If choice B is selected set score to 1.

54. In illustration D039SA below, which fire control plan symbol designates a space or compartment protected by Halon 1301?

- (A) 10
- (B) 11
- (C) 12
- (D) 44

If choice B is selected set score to 1.

55. To ensure receipt of all relevant MSI, a NAVTEX receiver should be turned on at least how many hours prior to departure from port?

- (A) 2
- (B) 8
- (C) 4
- (D) 6

If choice C is selected set score to 1.

56. You are underway in mid-ocean, when you hear a distress message over the VHF radio. The position of the sender is 20 miles away. What action should you take?

- (A) Defer acknowledgment for a short interval so that a coast station may acknowledge receipt.
- (B) Immediately acknowledge receipt of the distress message.
- (C) Do not acknowledge because you are too far away to take action.
- (D) Do not acknowledge receipt until other ships nearer to the distress have acknowledged.

If choice B is selected set score to 1.

57. When a vessel is stationary and in a hogging condition, the main deck is under _____.

- (A) compression stress
- (B) tension stress
- (C) shear stress
- (D) racking stress

If choice B is selected set score to 1.

58. Radiation spreads a fire by _____.

- (A) transferring heat across an unobstructed space
- (B) transmitting the heat of a fire through the ship's metal
- (C) burning liquids flowing into another space
- (D) heated gases flowing through ventilation systems

If choice A is selected set score to 1.

59. The AMVER system for vessels in the Gulf of Mexico is administered by the _____.

- (A) Department of Energy
- (B) Corps of Engineers
- (C) Minerals Management Service
- (D) U.S. Coast Guard

If choice D is selected set score to 1.

60. If you are transmitting a distress message by radiotelephone you should _____.

- (A) follow the transmission with the radio alarm signal
- (B) preface it by the word "Interco"
- (C) always use the International Code
- (D) use English language

If choice D is selected set score to 1.

61. If your vessel has a GM of one foot and a breadth of 50 feet, what is your vessel's estimated rolling period?

- (A) 11 seconds
- (B) 15 seconds
- (C) 22 seconds
- (D) 20 seconds

If choice C is selected set score to 1.

62. You must shore up a bulkhead due to solid flooding forward. The bulkhead approximates a rectangle. The center of pressure of the shores on the bulkhead should be located _____.

- (A) approximately one-third of the way up the bulkhead
- (B) evenly over the surface of the bulkhead
- (C) approximately halfway up the bulkhead
- (D) at the bottom of the bulkhead

If choice A is selected set score to 1.

63. A fire in a pile of canvas is classified as class _____.

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

If choice A is selected set score to 1.

64. Each EPIRB and SART for lifeboats shall be tested _____.

- (A) weekly
- (B) every 2 weeks
- (C) monthly
- (D) every 3 months

If choice C is selected set score to 1.

65. How is the "call" part of a signal by flashing light made?

- (A) spelling the name of the station called
- (B) the identity signal of the station called
- (C) omitting the call if the name of the station is unknown
- (D) sending "CQ"

If choice B is selected set score to 1.

66. The distress message of a ship should include considerable information which might facilitate the rescue. This information should _____.

- (A) include the vessel's draft
- (B) be transmitted as a series of short messages, if time allows
- (C) be sent to a Coast Guard station FIRST
- (D) ALWAYS be included in the initial distress message

If choice B is selected set score to 1.

67. Handholds or straps on the underside of an inflatable life raft are provided _____.

- (A) to right the raft if it capsizes
- (B) to carry the raft around on deck
- (C) to hang the raft for drying
- (D) for crewmen to hang on to

If choice A is selected set score to 1.

68. If a vessel takes a sudden, severe list or trim from an unknown cause, you should FIRST _____.

- (A) counterflood
- (B) assume the shift is due to off-center loading
- (C) determine the cause before taking countermeasures
- (D) assume the cause is environmental forces

If choice C is selected set score to 1.

69. A situation has occurred in which your vessel must be towed. When the towing vessel passes the towing line to you, you should secure the line _____.

- (A) to the base of the foremast
- (B) to the forward-most bitts
- (C) to the forward part of the deckhouse
- (D) at the stern

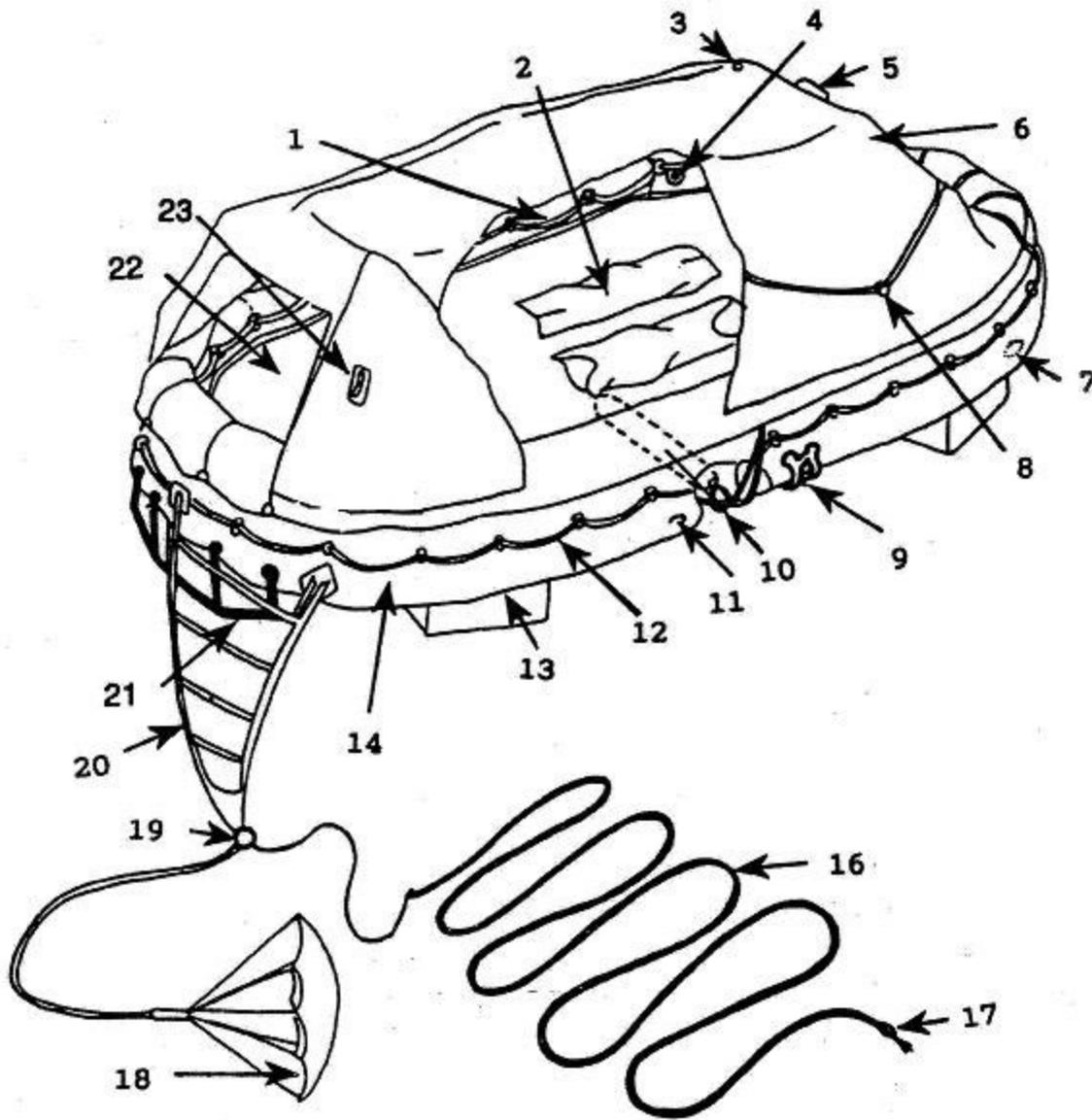
If choice B is selected set score to 1.

70. Forces within a vessel may cause a difference between the starboard and port drafts. What is this difference called?

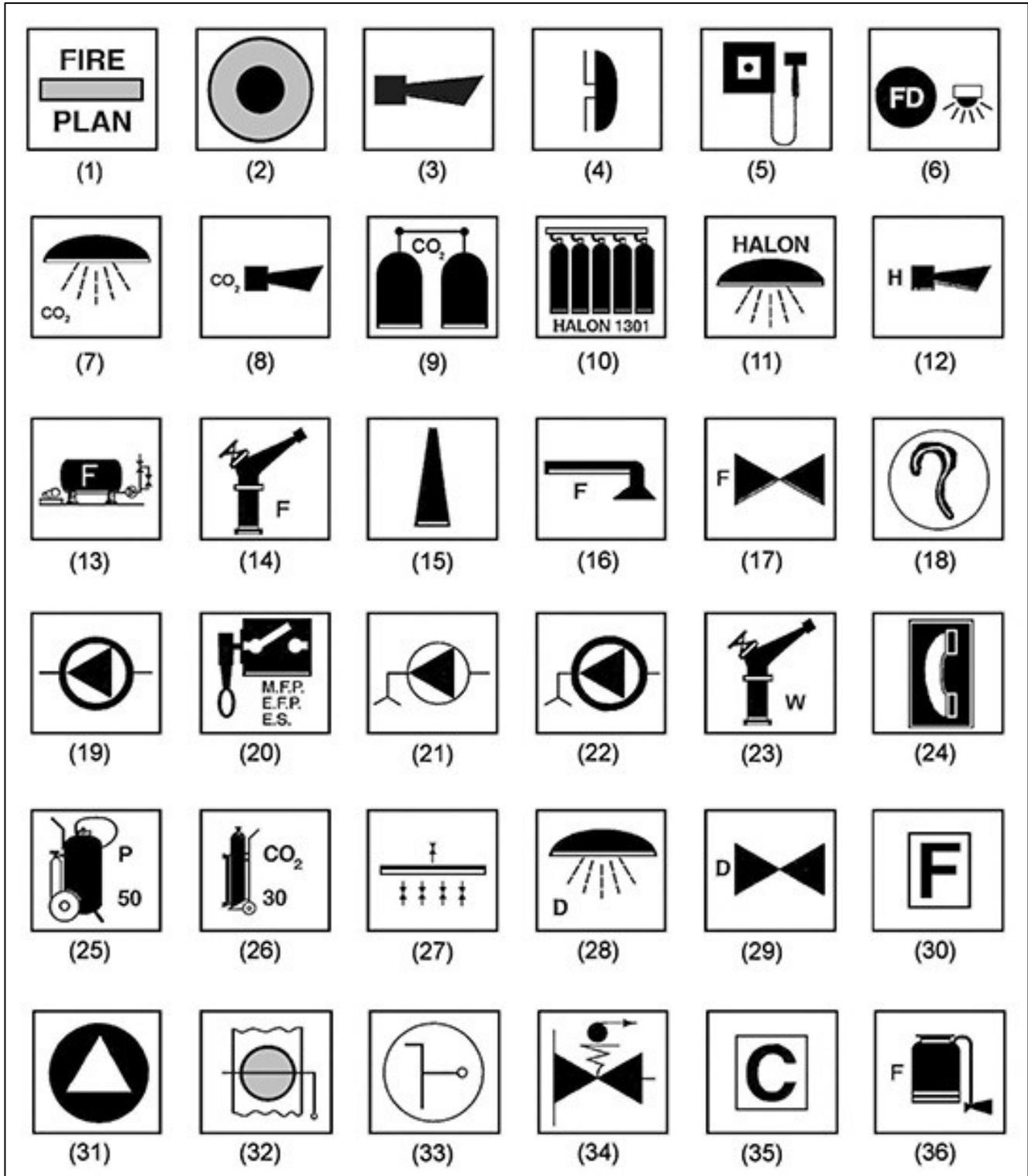
- (A) heel
- (B) trim
- (C) flotation
- (D) list

If choice D is selected set score to 1.

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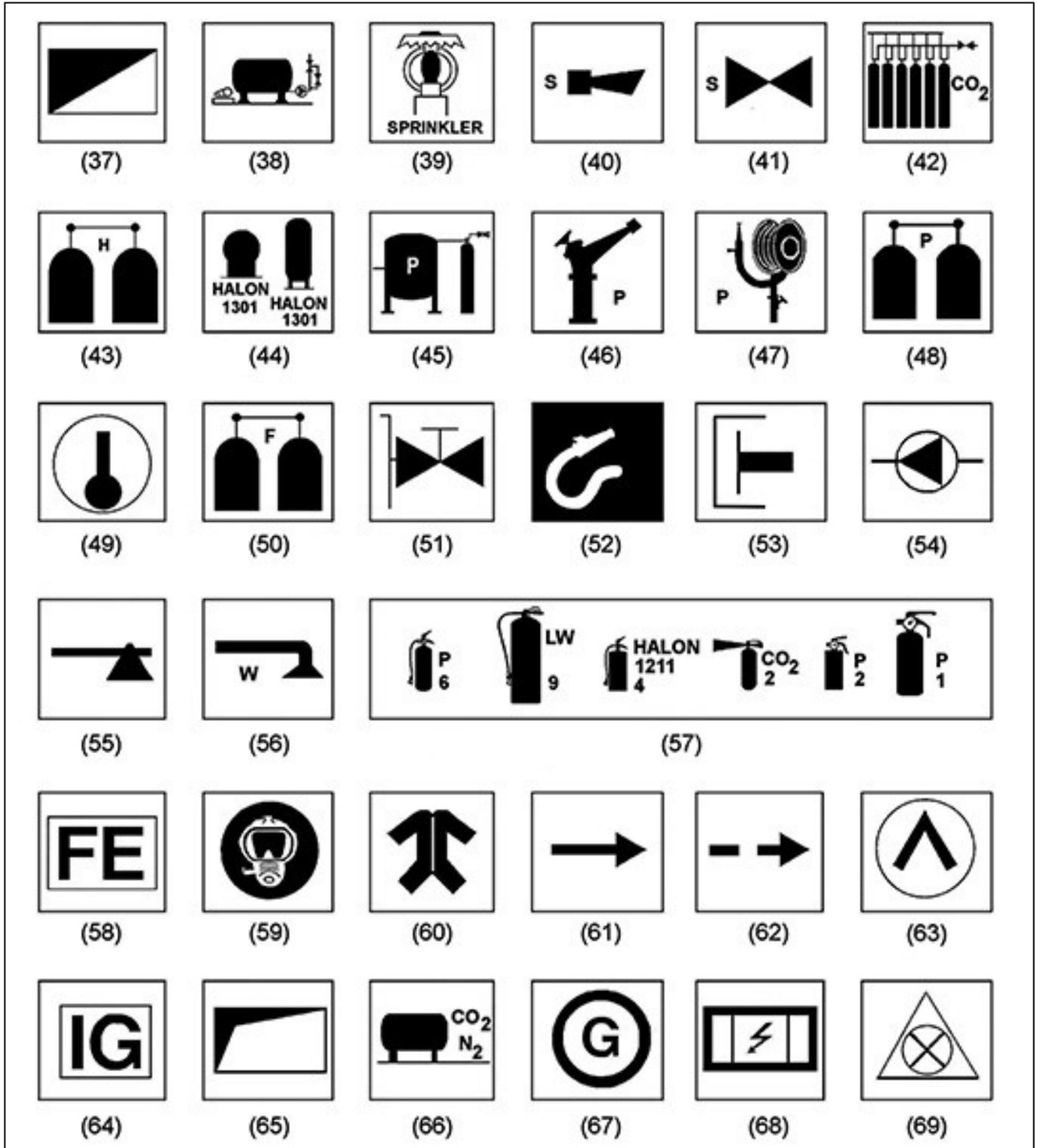
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