

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

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

1. 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

Correct answer: D

2. 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

3. Which is the best action to take when plugging holes below the waterline for the safety of the vessel?
- A. Eliminate all water entering the hole
 - B. Plug the largest holes first
 - C. Only plug holes in machinery or other vital spaces
 - D. Reduce the entry of water as much as possible

Correct answer: D

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

Correct answer: C

5. If an airplane circles a vessel 3 times, crosses the vessel's course close ahead while rocking the wings, and heads off in a certain direction, what does this indicate?
- A. There is danger ahead and the best course is indicated by the direction of the aircraft.
 - B. The plane is going to drop a package and wishes the vessel to recover it.
 - C. The plane is in distress and will have to ditch.
 - D. Someone is in distress in that direction and the vessel should follow and assist.

Correct answer: D

6. Which technique could be used to give a more comfortable roll to a stiff vessel?

- A. Ballast the peak tanks
- B. Concentrate weights on upper decks
- C. Add weight near the centerline of the lower hold
- D. Move weights lower in the ship

Correct answer: B

7. What is meant by the term "overhaul" in firefighting?

- A. Smother the fire with a blanket or similar object
- B. Slow down the spread of fire by cooling adjacent structures
- C. Break up solid objects to ensure that any deep-seated fires are extinguished
- D. Cover the fire with foam

Correct answer: C

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

- A. Heave
- B. Yaw
- C. Surge
- D. Sway

Correct answer: D

9. Which term describes the time required to incline the vessel from port to starboard and back to port again?

- A. Rolling period
- B. Range of stability
- C. Initial stability
- D. Inclining moment

Correct answer: A

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

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

Correct answer: D

11. Which system may be useful for messages, such as local storm warnings or a shore-to-ship distress alert, for which it is inappropriate to alert all ships in the satellite coverage area?

- A. EGC
- B. AMVER
- C. DSC
- D. NAVTEX

Correct answer: A

12. On a passenger vessel, the vessel's name must appear on which item(s)?

- A. Lifeboats
- B. Ring life buoy
- C. Lifeboat oars
- D. All of the above

Correct answer: D

13. 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'-10.7", AFT 25'-00.9"
- C. FWD 22'-11.9", AFT 24'-11.7"
- D. FWD 23'-00.5", AFT 24'-11.1"

Correct answer: D

14. If the situation arose where it became necessary to tow a disabled vessel, which statement is TRUE concerning the towing line?

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

Correct answer: C

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

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

Correct answer: B

16. Progressive flooding is controlled by securing watertight boundaries and which other action?

- A. Plugging holes or openings
- B. Jettisoning cargo
- C. Transferring water ballast
- D. Abandoning ship

Correct answer: A

17. What is the difference between the starboard and port drafts due to the wind or seas called?

- A. List
- B. Trim
- C. Heel
- D. Flotation

Correct answer: C

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

- A. Ultrasonic
- B. Magnetic particle
- C. Chemical reaction
- D. Dye penetrant

Correct answer: A

19. What is one of the FIRST actions you should take after abandoning and clearing away from a vessel?

- A. Gather up useful floating objects.
- B. Identify the person in charge.
- C. Arrange watches and duties.
- D. Prepare for arrival of rescue units.

Correct answer: B

20. The vessel shown in illustration D025DG has broken down and you are going to take her in tow. The wind is coming from her starboard beam. You are making more leeway than she. Where should you position your vessel when you start running lines?

- A. A
- B. B
- C. C
- D. D

Correct answer: A

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

- A. Class B
- B. Category 1
- C. Class C
- D. Class A

Correct answer: B

22. While you are working in a space, the fixed CO₂ system is accidentally activated. Which action should you take?

- A. Make sure all doors and vents are secured
- B. Secure the applicators to preserve the charge in the cylinders
- C. Retreat to fresh air and ventilate the compartment before returning
- D. Continue with your work as there is nothing you can do to stop the flow of CO₂

Correct answer: C

23. 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. 6
- B. 4
- C. 2
- D. 8

Correct answer: B

24. Overhauling a fire in the living quarters on a vessel must include which action?

- A. Sounding the "all clear" signal, no action is necessary
- B. Opening dead spaces to check for heat or fire
- C. Operation of the emergency generator
- D. The immediate evacuation of the vessel

Correct answer: B

25. You are underway in mid-ocean when you hear a distress message. The position of the sender is 150 miles away. No other vessel has acknowledged the distress. Your maximum speed is 5 knots and due to the seriousness of the distress, you cannot arrive on scene to provide effective assistance. What action should you take?

- A. Do not acknowledge the distress message.
- B. Send an urgency message about the distress.
- C. Transmit a message as though your vessel was in distress.
- D. Use the signal MAYDAY RELAY and transmit the distress message.

Correct answer: D

26. Small hull leaks can be temporarily repaired by _____.

- A. parceling
- B. seizing
- C. parbuckling
- D. caulking

Correct answer: D

27. Which is TRUE of the term negative slip on a vessel?

- A. The ship is moving slower than the theoretical propeller speed
- B. The ship is moving faster than the theoretical propeller speed
- C. The distance a vessel travels when all propulsion has been stopped
- D. The distance a vessel travels in the same direction when rudder has been applied

Correct answer: B

28. 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 coordinate with the Shipping Control Team
- B. If on a coastwise voyage along the east coast of the U.S., you should put into the nearest port
- C. When over 200 miles from a port in the danger zone, you should not darken ship
- D. You should only enter a port in the danger zone during hours of darkness

Correct answer: A

29. What will happen when cargo is shifted from the main deck into the lower hold of a vessel?

- A. The GM will increase.
- B. The center of buoyancy will move upward.
- C. The metacenter will move upward.
- D. All of the above

Correct answer: A

30. If your vessel has a GM of one foot and a breadth of 50 feet, what is your vessel's estimated rolling period?
- A. 15 seconds
 - B. 11 seconds
 - C. 22 seconds
 - D. 20 seconds

Correct answer: C

31. A vessel is "listed" when it is _____.
- A. down by the stern
 - B. inclined due to off-center weight
 - C. inclined due to wind
 - D. down by the head

Correct answer: B

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

Correct answer: C

33. Which statement is TRUE concerning the "flash point" of a substance?
- A. It is the temperature at which the released vapors will fall within the explosive range.
 - B. It is the temperature at which a substance will spontaneously ignite.
 - C. It is lower than the ignition temperature.
 - D. It is the temperature at which a substance, when ignited, will continue to burn.

Correct answer: C

34. When attempting to enter a compartment containing a fire, which method of applying water is best?
- A. Straight stream directed into the center of the fire
 - B. High-velocity fog stream directed toward the overhead
 - C. Solid stream directed toward the overhead
 - D. Sweeping the compartment with a fog stream

Correct answer: D

35. Portable foam fire-extinguishers are designed for use on which class of fires?
- A. Class A and class C fires
 - B. Class B and class C fires
 - C. Class A and class B fires
 - D. Class A, class B, and class C fires

Correct answer: C

36. 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

Correct answer: B

37. What may the firing of a red star signal mean?

- A. "You are seen - assistance will be given as soon as possible"
- B. "This is the best place to land"
- C. "Tail block is made fast"
- D. "Slack away"

Correct answer: D

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

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

Correct answer: D

39. Inflatable liferafts are less maneuverable than lifeboats due to their _____.

- A. shape
- B. shallow draft
- C. large sail area
- D. All of the above

Correct answer: D

40. A fire starts in a switchboard due to a short circuit. This is which class of fire?

- A. A
- B. B
- C. C
- D. D

Correct answer: C

41. Where do Signs of racking stresses generally appear on the vessel?

- A. At the junction of the frames with the beams and floors
- B. At the thrust bearing of the main shaft
- C. On the garboard strake, at each side of the keel
- D. At the bow and stern shell frames and plating

Correct answer: A

42. You have abandoned ship in tropical waters. Which procedure should be used during a prolonged period in a liferaft?
- A. Wet clothes during the day to decrease perspiration.
 - B. Keep the entrance curtains open.
 - C. Get plenty of rest.
 - D. All of the above

Correct answer: D

43. Which item is of the most use in getting a lifeboat away from a moving ship?
- A. Boat hook
 - B. Fleming Gear
 - C. The falls
 - D. Sea painter

Correct answer: D

44. Which extinguishing agent is most effective on a mattress fire?
- A. Dry Chemical
 - B. Water
 - C. Halon
 - D. CO2

Correct answer: B

45. A thrust bearing is designed to accomplish which action?
- A. To absorb the shock of wave pressure at the bow
 - B. To be placed between the engines and the foundation to absorb the vibration
 - C. To transmit the thrust of the propeller to the vessel
 - D. To transmit the thrust of the engine to the propeller

Correct answer: C

46. Which is TRUE of a distress signal?
- A. It is used to indicate doubt about another vessel's intentions
 - B. It shall consist of 5 or more short blasts of the fog signal apparatus
 - C. It may be used individually or in conjunction with other distress signals
 - D. It shall consist of the raising and lowering of a large white flag

Correct answer: C

47. 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. The passengers should just watch
 - D. Passengers should go to their quarters during drills

Correct answer: B

48. A person who observes an individual fall overboard should do which of the following?

- A. Go to the control room for the distress flares
- B. Run to the radio room to send an emergency message
- C. Call for help and keep the individual in sight
- D. Immediately jump into the water to assist the individual

Correct answer: C

49. A drill must be conducted in the use of the line throwing appliance. How often is this drill required to be conducted?

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

Correct answer: B

50. What should you do, if help has not arrived in 10-12 hours, after having abandoned your vessel in a survival craft?

- A. Plot a course for the nearest land
- B. Take a vote on the direction in which to go
- C. Shutdown the engines and put out the sea anchor
- D. Go in one direction until the fuel runs out

Correct answer: C

51. You are reading the draft marks as shown in illustration D032DG. The water level is about 4 inches below the bottom of the number 11. What is the draft?

- A. 10'-08"
- B. 10'-10"
- C. 11'-04"
- D. 11'-08"

Correct answer: A

52. On a small boat, if someone fell overboard and you did not know over which side the person fell, which action should you take?

- A. Stop the propellers from turning and throw a ring buoy over the side
- B. First put the rudder hard over in either direction
- C. Immediately reverse the engines
- D. Increase speed to full to get the vessel away from the person

Correct answer: A

53. What is the name given to the distance between the waterline of a vessel and the main continuous deck of a vessel?

- A. The camber
- B. The draft
- C. Buoyancy
- D. The freeboard

Correct answer: D

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

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

Correct answer: A

55. A vessel with a large GM will _____.

- A. be less likely to have cargo shift
- B. be subject to severe racking stresses
- C. tend to ship water on deck in heavy weather
- D. have a small amplitude of roll in heavy weather

Correct answer: B

56. Which of the following is part of the annual SOLAS required test on an EPIRB?

- A. Verification that the unit lanyard is neatly stowed and properly secured to the vessel
- B. Verification that the unit has been maintained by a shore-based maintenance provider
- C. Verification that the battery voltage is within 20% of the design limits
- D. Verification that the unit is stowed within five feet of survival craft

Correct answer: B

57. Your vessel has 3 lifeboats on each side. What is designated boat number of the middle boat on the starboard side?

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

Correct answer: C

58. You are on watch at sea on course 090°T. A man falls overboard on your starboard side. You immediately start a Williamson Turn. Which action is NOT a part of a Williamson Turn?

- A. Continue with left rudder until on course 270°T.
- B. Come right full rudder until the vessel heads 150°T.
- C. Shift the helm to left full rudder.
- D. Stop the engines until clear of the man.

Correct answer: D

59. Which vessel is NOT required to have a radiotelephone?

- A. A 12-meter private yacht
- B. A vessel of 100 GT carrying 50 passengers for hire
- C. A dredge operating in a channel
- D. A 34-foot vessel engaged in towing

Correct answer: A

60. You are wearing a breathing apparatus inside a tank. How many tugs on the lifeline should you give to indicate that you need help?
- A. 1
 - B. 2
 - C. 3
 - D. 4

Correct answer: D

61. What is the spoken emergency signal for a distress signal over a VHF radio?
- A. Mayday
 - B. Red Alert
 - C. Pan
 - D. Security

Correct answer: A

62. You are calling another vessel by radiotelephone using the International Code of Signals. He responds with the words "Alpha Sierra". What does this indicate?
- A. You should send your message in International Code
 - B. You should proceed with your message
 - C. You should send your message in plain language
 - D. He cannot accept traffic immediately

Correct answer: D

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

Correct answer: C

64. 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.

ST-0172

DB 1 CL	48.2	DB 7 P	94.6
DB 1A CL	81.9	DB 7 S	94.6
DB 2 P	71.2	DT 1 CL	125.3
DB 2 S	71.2	DT 1A CL	235.6
DB 3 CL	214.4	DT 2 P	100.7
DB 4 CL	224.1	DT 2 S	100.7
DB 4 P	128.1	DT 3 P	86.1
DB 4 S	128.1	DT 3 S	86.1
DB 6 CL	212.0	DT 6 P	201.2
DB 6 P	87.0	DT 6 S	201.2
DB 6 S	87.0	DT 7 P	128.8
		DT 7 S	128.8

- A. 0.62 foot
- B. 0.80 foot
- C. 0.85 foot
- D. 0.99 foot

Correct answer: B

65. In weighing CO₂ cylinders, they must be recharged if weight loss exceeds which amount?

- A. 20% of weight of charge
- B. 10% of weight of full bottle
- C. 15% of weight of full bottle
- D. 10% of weight of charge

Correct answer: D

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

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

Correct answer: B

67. Who should inspect and test an inflatable liferaft?

- A. An approved servicing facility
- B. The Chief Mate
- C. A certificated lifeboatman
- D. Shipyard personnel

Correct answer: A

68. 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 which is TRUE?
- A. The vessel towed should slip first
 - B. The towing vessel should slip first
 - C. They should slip simultaneously
 - D. Either vessel may slip first

Correct answer: B

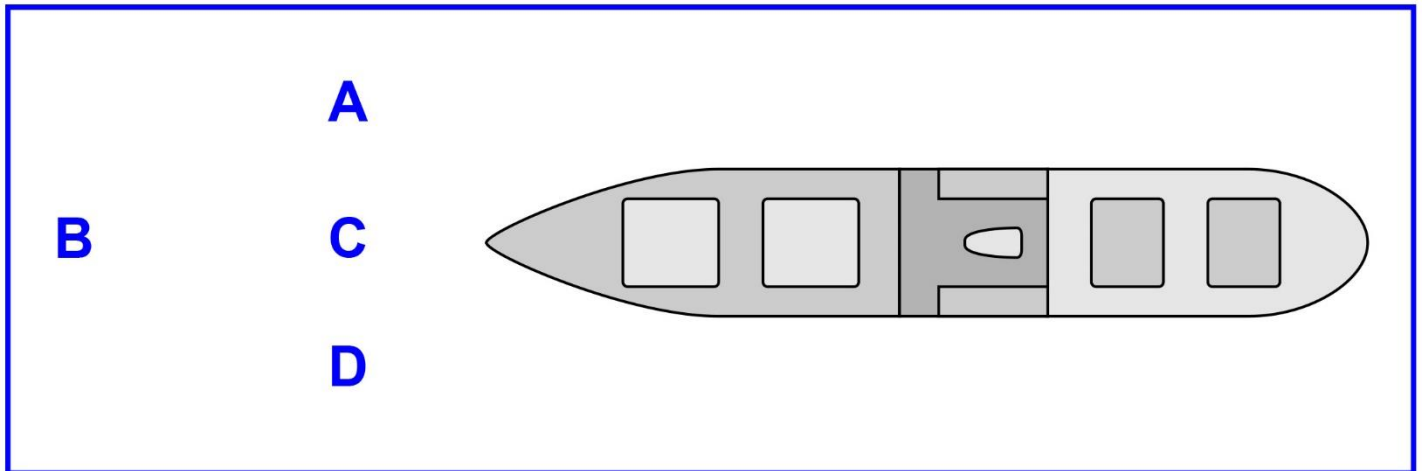
69. What is the purpose of a bilge well?
- A. To provide a base line for sounding measurements
 - B. To provide access for the pneumericator
 - C. To collect water to be pumped out
 - D. To afford access to the shell through the double bottoms

Correct answer: C

70. Which type of portable fire extinguisher is NOT designed for use on flammable liquid fires?
- A. Water (cartridge-operated)
 - B. Foam
 - C. Dry chemical
 - D. Carbon dioxide

Correct answer: A

D025DG



D032DG

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**AFT DRAFT
MARKS**

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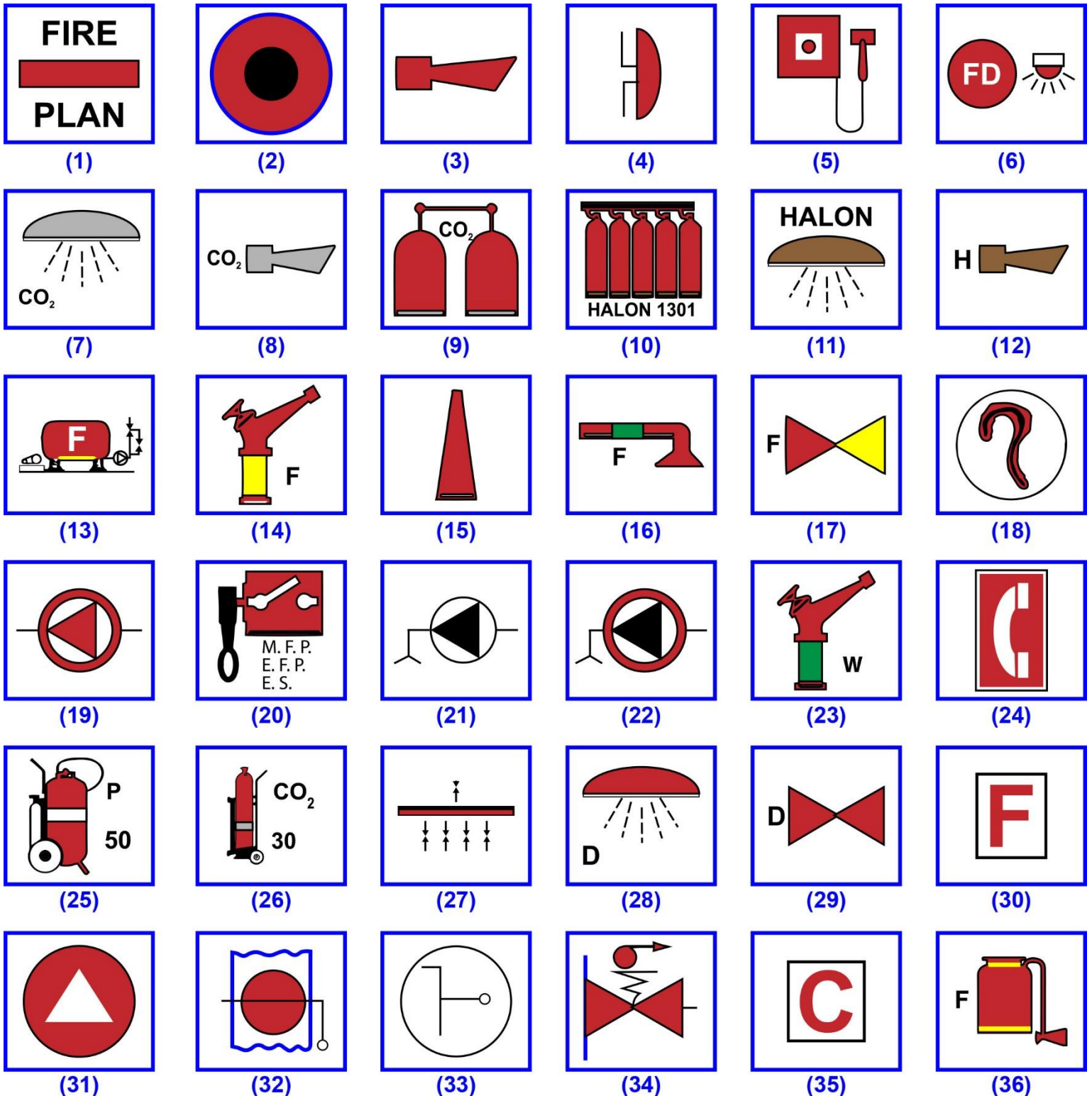
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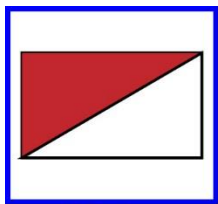
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MARKS**

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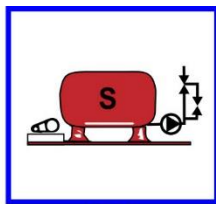


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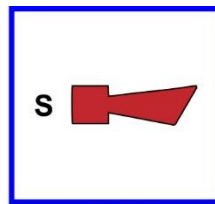
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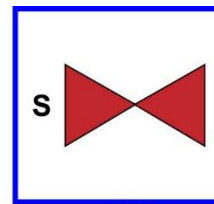
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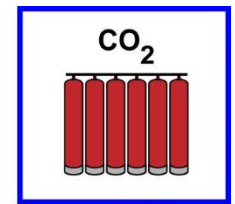
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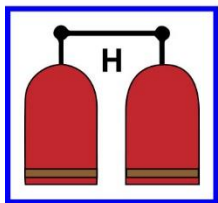
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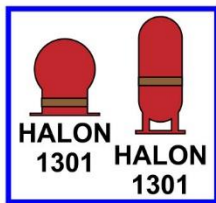
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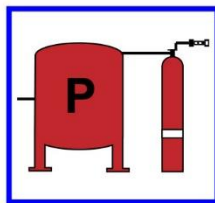
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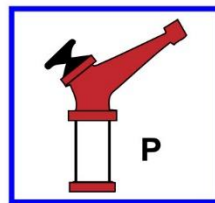
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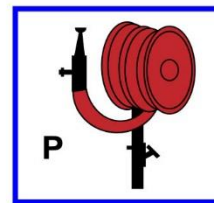
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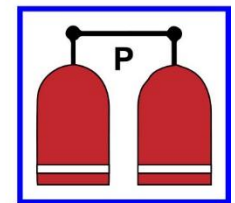
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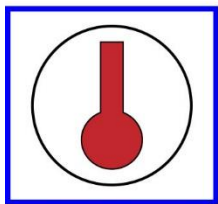
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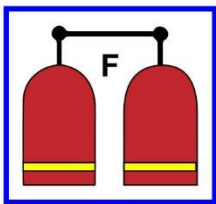
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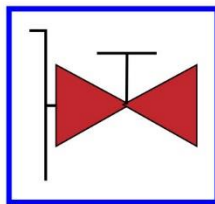
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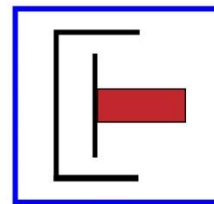
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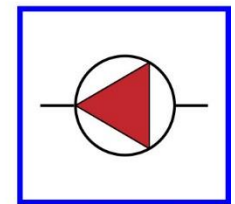
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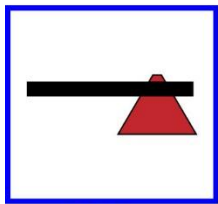
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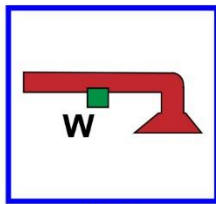
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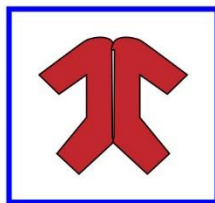
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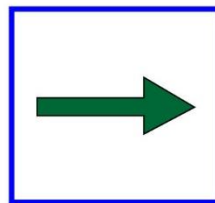
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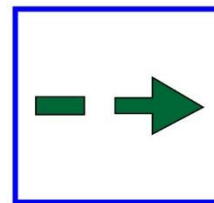
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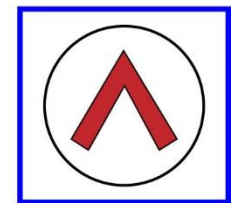
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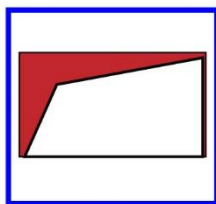
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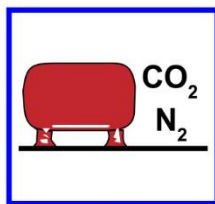
(63)



(64)



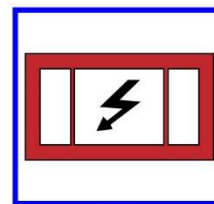
(65)



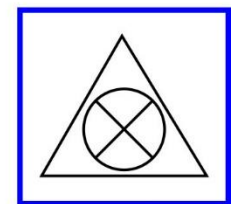
(66)



(67)



(68)



(69)

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