

## U.S.C.G. Merchant Marine Exam

OUPV to Master or Mate Less than 200 GRT  
Oceans or Near Coastal

Q158 Navigation and Deck General - Safety  
(Sample Examination)

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

1. Inflatable liferafts shall be serviced at an approved servicing facility every 12 months or not later than the next vessel inspection for certification. However, the total elapsed time between servicing cannot exceed \_\_\_\_\_.
- (A) 12 months
  - (B) 15 months
  - (C) 17 months
  - (D) 18 months

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

2. The trim and stability booklet must be approved by the \_\_\_\_\_.
- (A) International Maritime Organization
  - (B) National Cargo Bureau
  - (C) Society of Naval Architects and Marine Engineers
  - (D) United States Coast Guard

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

3. The Master shall insure that the Emergency Position Indicating Radio beacon (EPIRB) is \_\_\_\_\_.
- (A) tested monthly
  - (B) secured in the emergency locker
  - (C) tested annually
  - (D) secured inside the wheelhouse

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

4. The best method of determining if a vessel is dragging anchor is to note \_\_\_\_\_.
- (A) any change in the tautness of the anchor chain
  - (B) changes in bearings of fixed objects onshore
  - (C) how much the vessel sheers while at anchor
  - (D) the amount of line paid out

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

5. Your vessel is broken down and rolling in heavy seas. You can reduce the danger of capsizing by \_\_\_\_\_.
- (A) moving all passengers to the stern
  - (B) moving all passengers to one side of the boat
  - (C) rigging a sea anchor
  - (D) constantly shifting the rudder

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

6. You have determined that a cargo space on a freight vessel is 45 feet by 36 feet by 62 feet. How many pounds of carbon dioxide is required for this space?
- (A) 1674
  - (B) 2511
  - (C) 3348
  - (D) 5022

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

7. A negative metacentric height \_\_\_\_\_.
- (A) will always cause a vessel to capsize
  - (B) should always be immediately corrected
  - (C) always results from off-center weights
  - (D) All of the above are correct

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

8. Tankers that are in service carrying "sour crudes" are faced with additional problems for their safe operation. One such problem is called "polyphoric oxidation" what does this result in?
- (A) a second scrubber, known as an alkaline scrubber, to be added in series to the "normal" scrubber.
  - (B) a lighter grade of crude being needed for tank washing.
  - (C) additional time for tank cleaning.
  - (D) particles of rust in the tanks reaching a high temperature during "gas free" operations.

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

9. A vessel at LAT 32°14.7'N, LONG 66°28.9'W, heads for a destination at LAT 36°58.7'N, LONG 75°42.2'W. Determine the distance by Mercator sailing.
- (A) 300.2° miles
  - (B) 538.2° miles
  - (C) 241.2° miles
  - (D) 270.2° miles

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

10. You are planning to anchor in an area where several anchors have been lost due to fouling. As a precaution, you should \_\_\_\_\_.
- (A) anchor with scope of 8 or more to 1
  - (B) anchor using both anchors
  - (C) use a stern anchor
  - (D) fit a crown strap and work wire to the anchor

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

**11.** If you are loading fruit in reefer spaces and you notice that the fruit is beginning to mold, you should \_\_\_\_\_.

- (A) carry the cargo at a cooler temperature than originally planned
- (B) discharge CO<sub>2</sub> into the compartment after loading
- (C) refuse to carry the cargo
- (D) write up exceptions on the cargo

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

**12.** A tsunami is caused by a(n) \_\_\_\_\_.

- (A) tidal wave
- (B) earthquake on the ocean's floor
- (C) storm surge caused by a hurricane or tropical storm
- (D) tornado

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

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

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

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

**14.** The Brazil Current flows in which general direction?

- (A) Northwesterly
- (B) Southeasterly
- (C) Southwesterly
- (D) Northerly

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

**15.** A person has fallen overboard and is being picked up with a lifeboat. If the person appears in danger of drowning, the lifeboat should make \_\_\_\_\_.

- (A) an approach across the wind
- (B) an approach from windward
- (C) the most direct approach
- (D) an approach from leeward

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

**16.** The cold ocean current which meets the warm Gulf Stream between latitudes 40° and 43°N to form the "cold wall" is called the \_\_\_\_\_.

- (A) North Atlantic Current
- (B) North Cape Current
- (C) Labrador Current
- (D) Greenland Current

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

**17.** When fruit is carried as refrigerated cargo, the most frequent cause of its being infected at the discharge port is \_\_\_\_\_.

- (A) carriage at the wrong temperature
- (B) improper cleaning of the cargo spaces
- (C) improper precooling of the cargo spaces
- (D) leaks in the ship's refrigeration system

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

**18.** What is the name of tackle number 6 as shown in illustration D029DG below?

- (A) Triple purchase
- (B) Boat falls
- (C) Threefold purchase
- (D) Clew garnet tackle

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

**19.** The standing part of a tackle is \_\_\_\_\_.

- (A) the hook that engages the weight to be moved
- (B) that part to which power is applied
- (C) all the fall except the hauling part
- (D) that part of the falls made fast to one of the blocks

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

**20.** The directive force of a gyrocompass \_\_\_\_\_.

- (A) remains the same at all latitudes
- (B) increases with latitude, being maximum at the geographic poles
- (C) decreases with latitude, being maximum at the geographic equator
- (D) is greatest when a vessel is near the Earth's magnetic equator

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

**21.** The term that indicates how many tons of cargo a vessel can carry is \_\_\_\_\_.

- (A) bale cubic
- (B) deadweight
- (C) loaded displacement
- (D) gross tonnage

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

**22.** In a water-tube marine type boiler, after the steam leaves the generating tubes, in what part of the boiler is temperature of the steam increased?

- (A) Superheater
- (B) Economizer
- (C) Mud drum
- (D) Firebox

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

**23.** A metal ring on the bottom of a block, to which the standing part of a tackle is spliced, is known as a(n) \_\_\_\_\_.

- (A) swivel
- (B) eye
- (C) loop
- (D) becket

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

**24.** Which action(s) is/are included in crane operations?

- (A) Removing booms from stowage
- (B) Pre-operation checks and start-up
- (C) Luff, slew, and hoist operations
- (D) All of the above

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

**25.** If the current and wind are in the same direction, the sea surface represents a wind speed \_\_\_\_\_.

- (A) higher than actually exists
- (B) that has no proportional relationship
- (C) that actually exists
- (D) lower than actually exists

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

**26.** At 2237 ZT on 14 July you are in DR position LAT 33°57' N, LONG 150°32' W, when you observe an amplitude of Saturn. The planet is about one Sun's diameter above the visible horizon and bears 258.6°psc. The variation is 14°E. What is the deviation?

- (A) 1.0°E
- (B) 1.0°W
- (C) 2.0°W
- (D) 0.0°

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

**27.** On September 9 your 2130 zone time (ZD +5) DR position is LAT 45°08'N, LONG 82°38'W. At that time, you observe Polaris bearing 000.5°pgc. The chronometer time of the observation is 02h 26m 09s, and the chronometer is 1m 43s slow. The variation is 8.7°W. What is the gyro error?

- (A) 9.4°W
- (B) 1.2°E
- (C) 0.7°E
- (D) 0.8°W

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

**28.** A system of reservoirs and connecting tubes in a gyro compass is called a \_\_\_\_\_.

- (A) gyrotron
- (B) mercury ballistic
- (C) rotor
- (D) spider element

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

**29.** A drift lead indicates that the vessel is dragging anchor when the line is \_\_\_\_\_.

- (A) slack
- (B) leading out perpendicular to the centerline
- (C) leading under the hull
- (D) taut and leading forward

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

**30.** When a small craft's anchor fouls in a rocky bottom, the first attempt to clear it should be made by \_\_\_\_\_.

- (A) making the line fast to the bit and bringing the vessel further forward
- (B) reversing the angle and direction of pull, with moderate scope
- (C) hauling vertically on the line
- (D) increasing the scope and running slowly in a wide circle with the anchor line taut

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

**31.** The ceiling is \_\_\_\_\_.

- (A) a wooden protection placed over the tank top
- (B) material driven into seams or cracks to prevent leaking
- (C) the overhead in berthing compartments
- (D) None of the above are correct

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

**32.** The enclosed area defined as the intersection of the surface of the water and the hull of a vessel is the \_\_\_\_\_.

- (A) amidships plane
- (B) longitudinal reference plane
- (C) waterplane
- (D) baseline

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

**33.** When making way in heavy seas you notice that your vessel's screw is being lifted clear of the water and racing. One way to correct this would be to \_\_\_\_\_.

- (A) move more weight forward
- (B) increase speed
- (C) shift the rudder back and forth several times
- (D) decrease speed

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

**34.** The wooden planking that protects the tank top from cargo loading is called \_\_\_\_\_.

- (A) toms
- (B) ceiling
- (C) frames
- (D) shores

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

**35.** A tank 36 ft. by 36 ft. by 6 ft. is filled with water to a depth of 5 ft. If a bulkhead is placed in the center of the tank running fore-and-aft along the 36-foot axis, how will the value of the moment of inertia of the free surface be affected?

- (A) The moment of inertia would be 1/2 the original value.
- (B) The moment of inertia would remain unchanged.
- (C) The moment of inertia would be 1/4 its original value.
- (D) None of the above

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

**36.** The greatest effect on stability occurs from loose liquids flowing \_\_\_\_\_.

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

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

**37.** The correction to KG for transverse free surface effects may be found by dividing the vessel's displacement into the \_\_\_\_\_.

- (A) sum of the transverse free surface moments of the vessel
- (B) sum of the vertical moments of the vessel
- (C) transverse baseline of the vessel
- (D) transverse free surface correction for the vessel

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

**38.** The forward draft of your ship is 27'-11" and the after draft is 29'-03". The draft amidships is 28'-05". Your vessel is \_\_\_\_\_.

- (A) listed
- (B) hogged
- (C) sagged
- (D) trimmed by the head

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

**39.** Progressive flooding is controlled by securing watertight boundaries and \_\_\_\_\_.

- (A) transferring water ballast
- (B) abandoning ship
- (C) pumping out flooded compartments
- (D) jettisoning cargo

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

**40.** Free communication will adversely affect transverse stability only when the flooded space is \_\_\_\_\_.

- (A) completely flooded
- (B) open to the sea above and below the waterline
- (C) off-center
- (D) on the centerline

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

**41.** The order of importance in addressing damage control is \_\_\_\_\_.

- (A) control fire, restore vital services, control flooding
- (B) restore vital services, control fire, control flooding
- (C) control fire, control flooding, repair structural damage
- (D) control flooding, control fire, repair structural damage

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

**42.** 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) approximately halfway up the bulkhead
- (C) evenly over the surface of the bulkhead
- (D) at the bottom of the bulkhead

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

**43.** What is the purpose of a striker plate?

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

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

**44.** The brickwork surrounding the firebox of a boiler is known as \_\_\_\_\_.

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

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

**45.** The quickest method to stop a small diesel engine whose throttle or governor has become stuck open is to \_\_\_\_\_.

- (A) drain the fuel tank
- (B) turn off the ignition switch
- (C) apply the shaft brake
- (D) close the fuel supply valve

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

**46.** What is the minimum number of fire pumps required on a cargo vessel of 2,000 GT?

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

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

**47.** The boom indicator on a crane will indicate the \_\_\_\_\_.

- (A) lifting capacity of the boom
- (B) direction of the boom
- (C) length of the boom
- (D) angle of the boom

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

**48.** The wire rope used for cargo handling on board your vessel has a safe working load of eight tons. It shall be able to withstand a breaking test load of \_\_\_\_\_.

- (A) 32 tons
- (B) 40 tons
- (C) 48 tons
- (D) 64 tons

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

**49.** You have berthed in a port area with other tank vessels. What signal is displayed by a vessel to indicate it is transferring flammable or combustible liquid cargo?

- (A) A red light visible all around the horizon
- (B) An illuminated red and yellow caution flag
- (C) A green light visible all around the horizon
- (D) A flashing yellow light

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

**50.** How many low-velocity spray applicators are required on the weather decks of a tankship?

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

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

**51.** A B-II fire extinguisher has a minimum capacity of \_\_\_\_\_.

- (A) 3 gallons of foam
- (B) 20 pounds of CO<sub>2</sub>
- (C) 10 pounds of dry chemical
- (D) All of the above

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

**52.** What characteristic does a chemical additive to LPG give it?

- (A) pressure
- (B) color
- (C) odor
- (D) density

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

**53.** What is NOT a requirement for the safe and effective use of a crude oil washing system?

- (A) Use an inert gas system while washing tanks.
- (B) Decant one meter from the source tank for the tank cleaning machines.
- (C) Strip all tanks and remove the bottom residue.
- (D) Use portable washing machines to reach areas obscured by structural members in the tanks.

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

**54.** If passengers are on board when an abandon ship drill is carried out, they should \_\_\_\_\_.

- (A) take part
- (B) stay out of the way and do what they want
- (C) watch
- (D) go to their quarters

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

**55.** For the purpose of training and drills, if reasonable and practicable, how frequently should rescue boats be launched with their assigned crew?

- (A) once a year
- (B) once a week
- (C) once a month
- (D) twice a year

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

**56.** Recharging a previously used cartridge-operated dry-chemical extinguisher is accomplished by \_\_\_\_\_.

- (A) recharging the cartridge and refilling it with powder
- (B) authorized fire equipment servicing personnel only
- (C) replacing the propellant cartridge and refilling with powder
- (D) puncturing the cartridge seal after installation

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

**57.** In weighing CO2 cylinders, they must be recharged if weight loss exceeds \_\_\_\_\_.

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

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

**58.** Carbon dioxide as a fire fighting agent has which advantage over other agents?

- (A) It is cheaper.
- (B) It is safer for personnel.
- (C) It is most effective on a per unit basis.
- (D) It causes minimal damage.

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

**59.** When a man who is conscious has fallen overboard is being picked up by a lifeboat, the boat should approach with the wind \_\_\_\_\_.

- (A) ahead and the victim just off the bow
- (B) just off the bow and the victim to leeward
- (C) just off the bow and the victim to windward
- (D) astern and the victim just off the bow

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

**60.** You are proceeding to a distress site and expect large numbers of people in the water. Which statement is TRUE?

- (A) You should stop to windward of the survivors in the water and only use the ship's boats to recover the survivors.
- (B) If the survivors are in inflatable rafts you should approach from windward to create a lee for the survivors.
- (C) Survivors in the water should never be permitted alongside due to the possibility of injury from the vessel.
- (D) An inflatable liferaft secured alongside can be an effective boarding station for transfer of survivors from the boats.

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

**61.** The international body responsible for drafting the convention prohibiting marine pollution (MARPOL) is the \_\_\_\_\_.

- (A) Association of Seafaring Nations
- (B) International Association of Shipping
- (C) International Maritime Organization
- (D) Maritime Advisory Council

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

**62.** The Certificate of Freeboard is the \_\_\_\_\_.

- (A) Load Line Certificate
- (B) Admeasurer's Certificate
- (C) Forecastle Card
- (D) Certificate of Inspection

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

**63.** You are bound from port A governed by the summer load line mark to port B also governed by the summer mark. The great circle track will take you into a zone governed by the winter mark. Which statement is TRUE?

- (A) You must be at the winter mark when you enter the winter zone and cannot exceed the summer mark upon departing port A.
- (B) You can only load to the winter mark plus any fresh water allowance and burnout to sea at port A.
- (C) You cannot load beyond the summer mark at port A and must be at the winter mark upon arrival at port B.
- (D) You can load so that upon arrival at the pier at port B your freeboard is equal to the summer mark less any fresh water allowance.

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

**64.** On an inspected vessel, which abbreviation refers to the horizontal distance between perpendiculars taken at the forward-most and the after-most points on the waterline at her deepest operating draft?

- (A) LLL
- (B) LBP
- (C) LWL
- (D) LOA

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

**65.** The Articles of Agreement \_\_\_\_\_.

- (A) is also known as a Merchant Mariner's Document
- (B) advises the crew of the conditions of employment
- (C) are signed by each crewmember at the end of the voyage
- (D) designates the quarters a seaman will occupy during a voyage

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

**66.** A copy of the Articles of Agreement, less the signatures, is required to be posted. What is this document called?

- (A) Voyage Agreement
- (B) Shipping Articles
- (C) Forecastle Card
- (D) Articles Copy

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

**67.** You are the credentialed Master of a 100 GT towing vessel sailing coastwise. What percentage of the deck crew must be able to understand any order spoken by the officers?

- (A) 50%
- (B) 65%
- (C) 75%
- (D) 100%

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

**68.** You are the credentialed Master of a 199 GT uninspected towing vessel making a 500 mile coastwise trip. You carry a deck crew of six (6). Which statement is TRUE?

- (A) There must be at least 5 able seamen among the deck crew.
- (B) There must be 3 separate watches stood.
- (C) Only the able seamen require Merchant Mariner Credentials.
- (D) None of the above

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

**69.** What size bilge pump is required for a lifeboat which has a capacity of 675 cubic feet?

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

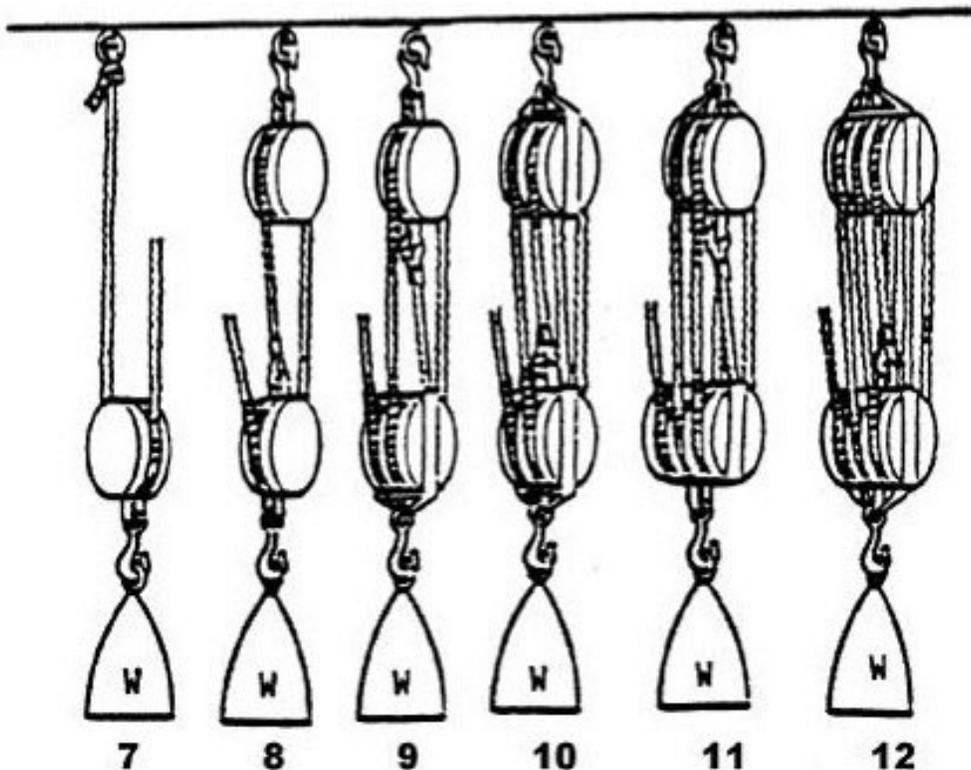
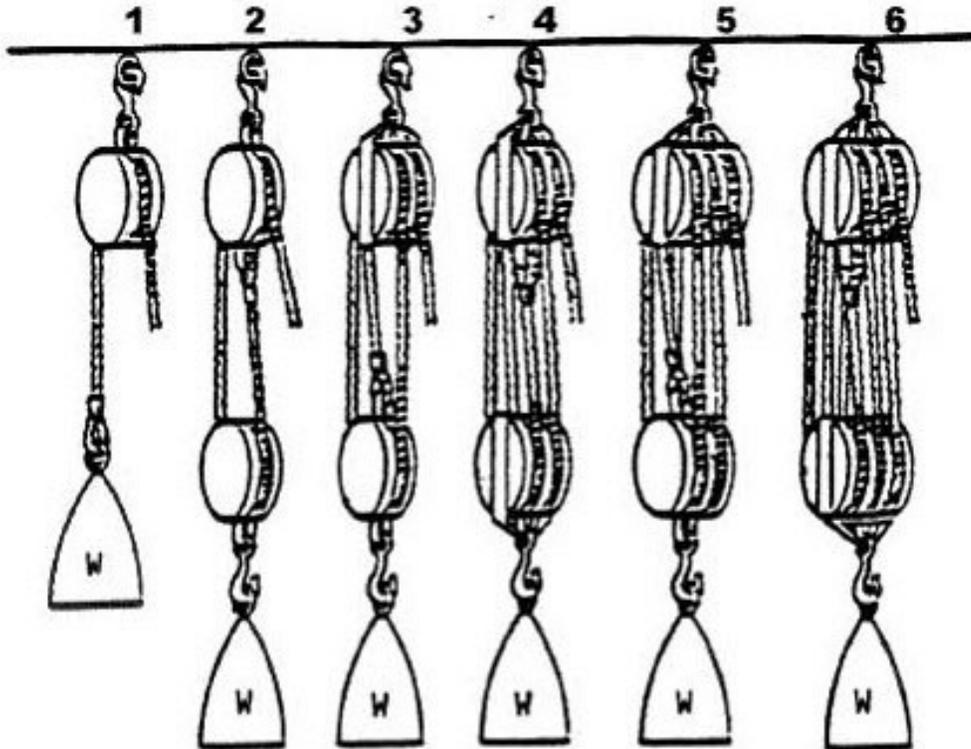
*If choice B is selected set score to 1.*

**70.** The breaking strength of the service lines of the rockets used with an impulse-projected, rocket type line throwing appliances is \_\_\_\_\_.

- (A) 300 lbs
- (B) 500 lbs
- (C) 1000 lbs
- (D) 1500 lbs

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

## D029DG



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