U.S.C.G. Merchant Marine Exam

First Assistant Engineer

Q511 General Subjects I

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

1. In the illustration shown, an efficient seal is maintained between the suction cover and the volute by __________. Illustration GS-0012
   - (A) good metal-to-metal contact
   - (B) sealant between the two parts
   - (C) an asbestos gasket
   - (D) compressing the packing rings

   If choice C is selected set score to 1.

2. What is the length of the stud used to secure the packing gland shown in the illustration? Illustration GS-0012
   - (A) 1 inch
   - (B) 1 1/4 inches
   - (C) 1 1/2 inches
   - (D) 2 1/2 inches

   If choice D is selected set score to 1.

3. Which of the tolerances listed is allowed on the outside diameter of the bushing illustrated? Illustration GS-0017
   - (A) 0.0005 inch
   - (B) 0.002 inch
   - (C) 0.060 inch
   - (D) 1.6015 inches

   If choice A is selected set score to 1.

4. Which of the devices listed can be used to measure any angle on a blueprint or drawing?
   - (A) Vernier
   - (B) Protractor
   - (C) Planimeter
   - (D) Compass

   If choice B is selected set score to 1.

5. If you attempt to tighten a leaking hydraulic fitting with pressure on the system, you will __________.
   - (A) cause the system to vibrate
   - (B) dislodge any scale in the tubing, and it will damage the system
   - (C) be successful every time
   - (D) find that the pressure will prevent the components from being tightened

   If choice D is selected set score to 1.
6. Lint from cleaning rags can be harmful to hydraulic systems because the lint __________.
   - (A) can cause rusting of internal parts
   - (B) can clog filters and promote component leakage
   - (C) solidifies and causes cracked lines
   - (D) breaks down hydraulic fluid

   If choice B is selected set score to 1.

7. Before doing any work on a hydraulic system equipped with accumulators, you should __________.
   - (A) completely charge the accumulators to prevent system energy loss
   - (B) drain the accumulators and purge with oxygen
   - (C) pump the hydraulic fluid into the accumulators to prevent fluid loss
   - (D) bleed off all stored energy from the accumulators

   If choice D is selected set score to 1.

8. To charge a bladder type hydraulic accumulator __________.
   - (A) remove all hydraulic system pressure and bring the pneumatic pressure to the accumulator preload pressure
   - (B) remove all hydraulic system pressure and bring the pneumatic pressure to the system's design pressure
   - (C) increase the pneumatic pressure until the hydraulic system reaches its design pressure
   - (D) allow the accumulator to completely fill with gas charge at atmospheric pressure, shut off the air chamber, and add hydraulic fluid until proper pressure is reached

   If choice A is selected set score to 1.

9. The bilge system has been performing well; however, the aft starboard engine room bilge well suddenly fails to be pumped out. Which of the following should be done first to determine the cause?
   - (A) Remove each of the manifold valves.
   - (B) Remove only the manifold valve to the affected bilge well.
   - (C) Attempt to pump out another bilge well to determine if the entire system is affected.
   - (D) Open the bilge pump for inspection.

   If choice C is selected set score to 1.
10. If a bilge pump is able to develop vacuum, but is unable to sufficiently pump out the bilges, you would check for all of the following EXCEPT __________.

   o (A) for leaks in the suction piping
   • (B) the circuit breaker
   o (C) relief valve is not properly seated
   o (D) the suction strainer

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

11. Referring to the illustration, suppose after initiating the oil discharge mode, the oily-water separator fails to come out of the oil discharge mode in a timely fashion. Cracking open the upper sampling valve reveals the presence of oil exiting under positive pressure. What is most likely the cause? Illustration GS-0175

   o (A) The clean water supply solenoid fails to open, and as a result provides no discharge pressure.
   o (B) The upper oil/water interface detection probe fails to end the oil discharge mode.
   • (C) The oil discharge check valve fails to open, and as a result no oil actually discharges.
   o (D) The lower oil/water interface detection probe fails to initiate the oil discharge mode.

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

12. Referring to the illustration, suppose while in the oil separation processing mode, the oil content detector display screen shows 17.9 ppm and the oily-water separator is discharging back to the bilge water holding tank for recirculation. What is most likely the cause? Illustration GS-0175

   o (A) The bilge water holding tank level is excessively high resulting in a high level alarm.
   • (B) The bilge water holding tank contents is excessively contaminated with oil.
   o (C) The oily-water separator service pump is excessively worn.
   o (D) The oily-water separator bilge suction strainer is excessively clogged.

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

13. The line labeled "C", as shown in the illustration, would be identified as the _______. Illustration GS-0175

   o (A) processed water outlet line
   o (B) oily bilge water inlet line
   o (C) waste oil discharge line
   • (D) clean water inlet line

   *If choice D is selected set score to 1.*
14. The components indicated as "7" and "8" as shown in the illustration, are known as the __________.
Illustration GS-0153

- (A) inlet weir and inlet baffle
- (B) second stage oil separator and drip pan
- (C) first stage oil separator and drip pan
- (D) outlet weir and outlet baffle

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

15. The line labeled "E", as shown in the illustration, would be identified as the ______. Illustration GS-0175

- (A) processed water outlet line
- (B) oily bilge water inlet line
- (C) waste oil outlet line
- (D) clean water inlet line

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

16. Coast Guard regulations concerning marine sanitation devices may be found in __________.

- (A) 33 CFR Section 159
- (B) 33 CFR Section 153
- (C) 33 CFR Section 155
- (D) 33 CFR Section 156

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

17. A pneumatic pressure tank is installed in a sanitary system to __________.

- (A) increase water flow through the system
- (B) provide a higher pressure in the system than the pump can deliver
- (C) reduce excessive cycling of the sanitary pump
- (D) prevent the sanitary pump from losing suction

*If choice C is selected set score to 1.*
18. On most commercial cargo vessels with a relatively small crew size and few users of the potable water system, how is the potable water system pressure maintained?

- (A) Allowing the potable water pump to run continuously against a shut-off head during periods of zero demand for potable water.
- (B) Cycling the potable water pump on and off by the action of potable water storage tank level switches in response to system demand changes.
- (C) Cycling the potable water pump on and off by the action of the potable water hydropneumatic tank pressure switch in response to system demand changes.
- (D) Allowing the potable water pump to run continuously while recirculating during periods of zero demand for potable water.

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

19. Which of the following desalination plants will always require a sterilizer when providing water to a potable water system?

- (A) Multi-stage flash type unit
- (B) Reverse osmosis type unit
- (C) Submerged tube type unit
- (D) Titanium plate type unit

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

20. A bearing using an oiling ring as a means of static oil feed must occasionally be serviced by removing the wear particles, grit, and moisture. How is this accomplished?

- (A) Draining the bottom of the strainer housing.
- (B) Changing the filter element.
- (C) Rotating the handle of the lube oil strainer.
- (D) Draining the bottom of the bearing lube oil sump.

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

21. On a bearing using an oiling ring as means of static oil feed, unless adverse conditions would indicate otherwise, how often should the oil be completely changed at a minimum?

- (A) Weekly
- (B) Monthly
- (C) Quarterly
- (D) Annually

*If choice D is selected set score to 1.*
22. If the bearings of a piece of machinery are fed by a gravity feed lubricating oil system, what statement is true concerning the vertical arrangement of the lube oil tanks?

- (A) The lube oil gravity tank and the lube oil reservoir/sump are both below the points of lubrication.
- (B) The lube oil gravity tank and the lube oil reservoir/sump are both above the points of lubrication.
- (C) The lube oil gravity tank is above the points of lubrication and the lube oil reservoir/sump is below the points of lubrication.
- (D) The lube oil gravity tank is below the points of lubrication and the lube oil reservoir/sump is above the points of lubrication.

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

23. In a closed-loop process control system, what term is used to describe the progressive reduction or suppression of oscillation in a component?

- (A) Deadband
- (B) Saturation
- (C) Damping
- (D) Hysteresis

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

24. In a closed-loop process control system, what is meant by the derivative mode of control?

- (A) It is a control mode that produces a control action that is proportional to the rate at which the error is changing.
- (B) It is a control mode that produces a control action that is proportional to the accumulation of error over time.
- (C) It is a control mode that produces a control action that is proportional to the error.
- (D) It is a control mode that produces a control action that is proportional to the gain.

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

25. In a closed-loop process control system, what term is used to describe the undesirable characteristic in which the error of a control system oscillates with constant or increasing amplitude?

- (A) Error
- (B) Instability
- (C) Deadband
- (D) Saturation

*If choice B is selected set score to 1.*
26. In a closed-loop process control system, what is meant by error?

- (A) The progressive reduction or suppression of oscillation in a component.
- (B) The ratio of the amplitude of the output signal of a component divided by the amplitude of the input signal.
- (C) The criterion of good control that permits no overshoot when the setpoint is changed.
- (D) The signal in a controller that is obtained by subtracting the measured value of the controlled value from the setpoint.

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

27. What type of propeller consists of a flat disc set flush with the under surface of the vessel's hull with a number of vertical, rudder-like blades projecting from it?

- (A) Helicoidal propeller
- (B) Tandem propeller
- (C) Contra-rotating propeller
- (D) Cycloidal propeller

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

28. When an electricity generating plant features shaft-driven generators, what type of propulsor is generally used for main propulsion?

- (A) Controllable-pitch propeller
- (B) Tandem propellers
- (C) Fixed-pitch propeller
- (D) Detachable-blade (built-up) propeller

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

29. With respect to a "tractor" type azimuthing thruster, what statement is true?

- (A) With an azimuthing angle of 0°, the gear unit is directly abaft of and in the wake of the azimuthing thruster's propeller.
- (B) With an azimuthing angle of 0°, the azimuthing thruster's propeller is directly abaft of and in the wake of the gear unit.
- (C) With an azimuthing angle of 0°, the gear unit is directly abaft of the azimuthing thruster's propeller, but the azimuthing thruster's propeller is in the wake of the gear unit.
- (D) With an azimuthing angle of 0°, the azimuthing thruster's propeller is directly abaft of the gear unit, but the gear unit is in the wake of the azimuthing thruster's propeller.

*If choice A is selected set score to 1.*
30. What statement represents the fundamental difference between an azimuthing thruster and a podded propulsor?

- (A) With an azimuthing thruster the thruster is not steerable, and with a podded propulsor the propulsor is steerable.
- (B) With an azimuthing thruster the thruster is steerable, and with a podded propulsor the propulsor is not steerable.
- (C) With an azimuthing thruster the prime mover is located outside the hull, and with a podded propulsor the prime mover is located inside the hull.
- (D) With an azimuthing thruster the prime mover is located inside the hull, and with a podded propulsor the prime mover is located outside the hull.

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

31. Which of the following couplings or clutches would be able to prevent the transmission of torsional vibrations from an engine to a reduction gear?

- (A) Inflatable tire-type pneumatic clutch
- (B) Hydraulic fluid-type clutch
- (C) Multiple disk friction clutch
- (D) Solid coupling

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

32. For a parallel axis single reduction gear, what statement is true?

- (A) The drive pinion is the smaller of the two gears and rotates at a relatively high speed. The driven gear is the larger of the two gears and rotates at a relatively low speed.
- (B) The drive pinion is the smaller of the two gears and rotates at a relatively low speed. The driven gear is the larger of the two gears and rotates at a relatively high speed.
- (C) The drive pinion is the larger of the two gears and rotates at a relatively high speed. The driven gear is the smaller of the two gears and rotates at a relatively low speed.
- (D) The drive pinion is the larger of the two gears and rotates at a relatively low speed. The driven gear is the smaller of the two gears and rotates at a relatively high speed.

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

33. If a main propulsion shafting arrangement is such that a strut and strut bearing is required, what is the name of the section of shafting that passes through the hull penetration to the closest watertight bulkhead?

- (A) Thrust shaft
- (B) Line shaft
- (C) Stern tube shaft
- (D) Tail or propeller shaft

*If choice C is selected set score to 1.*
34. What statement is true concerning the arrangement of line shaft bearing housings?

- (A) Line shaft bearing housings are typically single-piece flange type bearing housings.
- (B) Line shaft bearing housings are typically split half flange type bearing housings.
- (C) Line shaft bearing housings are typically single-piece pedestal type bearing housings.
- (D) Line shaft bearing housings are typically split half pedestal type bearing housings.

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

35. Which of the listed problems could produce a high absolute pressure within a flash type evaporator?

- (A) seawater feed temperature below 165°F
- (B) a leak in the first stage demister
- (C) a cracked distillate pump vent line
- (D) production of high salinity distillate

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

36. A high reading at a salinity cell located in the loop seal between two stages of a flash type evaporator would indicate __________.

- (A) leakage at the second-stage condenser
- (B) faulty operation of the brine overboard pump
- (C) chill shocking is necessary to remove scale
- (D) carryover in the first-stage

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

37. While operating a two-stage flash-type evaporator, designed to operate in sea water of 70°F, the current seawater temperature is 50°F, while the salt water feed temperature is maintained at 170°F. The three-way solenoid valve trips, directing the distillate pump discharge to the bilge. Which of the following conditions is the probable cause for this occurrence?

- (A) Excessive and violent flashing in each stage.
- (B) Insufficient brine density being maintained in the second stage.
- (C) Insufficient vacuum developed as a result of the sea temperature.
- (D) Excessive amount of feedwater being supplied to the first stage.

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

38. Which of the following conditions can cause high salinity of the distillate due to sea water leakage in the illustrated device? Illustration MO-0110

- (A) Improper venting during operation.
- (B) Improper venting during start-up.
- (C) Failure to properly tighten the bolts of the evaporator heat exchanger.
- (D) Failure to properly tighten the bolts of the condenser heat exchanger.

*If choice D is selected set score to 1.*
39. If valve "H" shown in the illustration is opened wide while the distiller is in operation, __________.
Illustration MO-0111

- (A) the absolute pressure of the unit will increase with an associated decrease in shell temperature
- (B) the absolute pressure of the unit will increase due to the increased effect of the air ejector
- (C) the absolute pressure of the unit will not be affected, but the rate of condensation will be decreased
- (D) the absolute pressure of the unit will increase with an associated increase in shell temperature

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

40. Which of the conditions listed would indicate a large condenser tube leak within the distiller shown in the illustration? Illustration MO-0111

- (A) A decrease in the level of the main engine expansion tank as indicated by a low level alarm.
- (B) An increase in distiller output resulting from the combination of jacket water and the distillate produced.
- (C) The activation of the salinity monitoring equipment's annunciator circuit.
- (D) A slow continuous rise in the lube oil cooler outlet temperature indicated at device "4".

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

41. What is the BEST indication that the membrane module is damaged and is no longer semi-permeable and allowing the solute to pass through?

- (A) Higher than normal brine overboard back pressure.
- (B) Lower than normal fresh water production.
- (C) Low fresh water outlet salinity.
- (D) High fresh water outlet salinity.

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

42. If a reverse-osmosis freshwater generator has fouled membrane modules, what statement is true?

- (A) The freshwater production rate would be higher than normal, and the feed pressure would be higher than normal.
- (B) The freshwater production rate would be lower than normal, and the feed pressure would be higher than normal.
- (C) The freshwater production rate would be lower than normal, and the feed pressure would be lower than normal.
- (D) The freshwater production rate would be higher than normal, and the feed pressure would be lower than normal.

*If choice B is selected set score to 1.*
43. The instrument always used in conjunction with a salinometer is a __________.

- (A) pyrometer
- (B) hygrometer
- (C) hydrometer
- (D) thermometer

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

44. A salinity indicating system functions on the basic principle of measuring the __________.

- (A) electrical conductivity of water
- (B) specific gravity of water
- (C) electrical inductance of water
- (D) hydrogen ion concentration of water

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

45. On deep-draft ships, what statement is true concerning high and low sea suctions for machinery space sea water cooling systems?

- (A) A low sea suction is located near the turn of the bilge and is used primarily in port or when operating in shallow water, and a high sea suction is located near the bottom of the ship and is used primarily while underway.
- (B) A high sea suction is located near the turn of the bilge and is used primarily while underway, and a low sea suction is located near the bottom of the ship and is used primarily in port or when operating in shallow water.
- (C) A low sea suction is located near the turn of the bilge and is used primarily while underway, and a high sea suction is located near the bottom of the ship and is used primarily in port or when operating in shallow water.
- (D) A high sea suction is located near the turn of the bilge and is used primarily in port or when operating in shallow water, and a low sea suction is located near the bottom of the ship and is used primarily while underway.

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

46. Referring to the illustrated motor ship fresh water cooling system drawing, what statement is true concerning the jacket water heater? Illustration MO-0212

- (A) The jacket water heater is used only when the engine is idle to keep the engine warm.
- (B) The jacket water heater is used under low engine load conditions to provide supplemental heat for the evaporator.
- (C) The jacket water heater is used only when the engine is idle for the sole purpose of generating fresh water at the evaporator.
- (D) The jacket water heater is used under high engine load conditions to dissipate excess engine heat.

*If choice A is selected set score to 1.*
47. Referring to the illustrated motor ship fresh water cooling system drawing, what statement is true concerning the main engine jacket water cooling temperature control system? Illustration MO-0212

- (A) The main engine jacket water 3-way temperature control valve is setup as a diverter and is used to control the main engine jacket water inlet header temperature.
- (B) The main engine jacket water 3-way temperature control valve is setup as a mixer and is used to control the main engine jacket water inlet header temperature.
- (C) The main engine jacket water 3-way temperature control valve is setup as a diverter and is used to control the main engine jacket water outlet header temperature.
- (D) The main engine jacket water 3-way temperature control valve is setup as a mixer and is used to control the main engine jacket water outlet header temperature.

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

48. Assuming valve "A" is correctly aligned in the no-flow position as shown with the system in operation, which of the following statements is true? Illustration GS-0049

- (A) Valve "D" would normally open before valve "B".
- (B) Valve "C" would be closed.
- (C) The fixed delivery pump would be stopped automatically by a pressure switch.
- (D) Valve "B" would be open before valve "D".

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

49. A hydraulic fluid flow control circuit, controlling linear actuator speed during extension, with the pump operating at system pressure, is known as a __________.

- (A) bleed-off circuit
- (B) metered-in circuit
- (C) bleed-in circuit
- (D) metered-out circuit

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

50. A hydraulic fluid flow control circuit, controlling linear actuator speed, with the pump operating below maximum operating pressure is known as the __________.

- (A) bleed-in circuit
- (B) metered-in circuit
- (C) bleed-off circuit
- (D) metered-out circuit

*If choice C is selected set score to 1.*
51. If it is necessary to prevent the rudder from moving while a repair is made on the steering system using the illustrated actuator __________. Illustration GS-0116

- (A) secure the valves in the supply and return lines
- (B) tighten the locking screws in item "S"
- (C) screw in the locking pin, item "J"
- (D) tighten the locking pins, item "H" at each position of item "I" to keep the rudder from swinging

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

52. In the illustrated schematic, the device used to replace the six-way valve, as found on many older type steering gears, is the component labeled as __________. Illustration GS-0123

- (A) "A"
- (B) "B"
- (C) "F"
- (D) "H"

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

53. A command signal input to the steering gear has initiated rudder movement for 20° right rudder. The follow-up mechanism at the beginning of the rudder movement will __________. Illustration GS-0123

- (A) be in motion with a null input
- (B) not be in motion, thus a null input
- (C) be in motion providing an input to place the variable stroke pump on maximum stroke
- (D) be in motion providing an input to place the variable stroke pump at null stroke

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

54. The action necessary to use the steering gear room trick wheel when transferring the steering control from the wheelhouse to local control, is to __________.

- (A) align the trick wheel to the rudder angle position before engaging
- (B) set the six-way control valve in the trick wheel position
- (C) open the power transfer switch before engaging the trick wheel
- (D) always place the rudder in the amidships position to engage the trick wheel

*If choice A is selected set score to 1.*
55. A horizontal electro-mechanical anchor windlass is equipped with two warping heads, two wildcats, two manual brake handwheels, two clutch control levers, and a multipoint lever-operated, pedestal-mounted controller. What statement is true as it pertains to the operation of the warping heads and wildcats?

- (A) The wildcats can be rotated in either direction of rotation without rotating the warping heads by disengaging the warping head clutches. As long as electric power is applied to the electric drive motor, the wildcats will rotate.
- (B) The warping heads can be rotated in either direction of rotation without rotating the wildcats by disengaging the wildcat clutches. As long as electric power is applied to the electric drive motor, the wildcats will rotate.
- (C) The wildcats can be rotated in either direction of rotation without rotating the warping heads by disengaging the warping head clutches. As long as electric power is applied to the electric drive motor, the warping heads will rotate.
- (D) The warping heads can be rotated in either direction of rotation without rotating the wildcats by disengaging the wildcat clutches. As long as electric power is applied to the electric drive motor, the warping heads will rotate.

*If choice D is selected set score to 1.

56. As it pertains to the automatic hydraulic brake of a horizontal electro-hydraulic anchor windlass, what statement is true?

- (A) The brake is spring set and hydraulically released, and the brake automatically releases when the pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (B) The brake is hydraulically set and spring released, and the brake automatically sets when the pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (C) The brake is hydraulically set and spring released, and the brake automatically releases when the pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (D) The brake is spring set and hydraulically released, and the brake automatically sets when the pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.

*If choice D is selected set score to 1.

57. In attempting to start the hydraulic pump drive motor of a horizontal electro-hydraulic anchor windlass, what condition would prevent the electric motor from starting?

- (A) Failure to start could be the result of an electrical interlock associated with the hydraulic pump stroke control being in other than the neutral position.
- (B) Failure to start could be the result of an electrical interlock associated with the wildcat clutches being disengaged.
- (C) Failure to start could be the result of an electrical interlock associated with handwheel operated wildcat band brakes being set.
- (D) Failure to start could be the result of an electrical interlock associated with the hydraulic pump stroke control being in the neutral position.

*If choice A is selected set score to 1.
58. As it pertains to the hoist motion limits associated with an electro-hydraulic cargo-handling pedestal-type deck crane, which statement is true?

- (A) When the hoist cable is payed out to a nearly empty drum condition or when the hoist block is raised to a maximum permissible height relative to the boom, the hoist pump shall be placed on stroke and the hoist winch brake released.
- (B) When the hoist cable is payed out to a nearly empty drum condition or when the hoist block is raised to a maximum permissible height relative to the boom, the hoist pump shall be stroked to zero and the hoist winch brake set.
- (C) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the hoist pump shall be placed on stroke and the hoist winch brake released.
- (D) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the hoist pump shall be stroked to zero and the hoist winch brake set.

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

59. As it pertains to the luffing motion limits associated with an electro-hydraulic cargo-handling pedestal-type deck crane, what statement is true?

- (A) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the luffing pump shall be stroked to zero and the luffing winch brake set.
- (B) When the hoist block is raised to a maximum permissible height with respect to the boom, the luffing pump shall be stroked to zero and the luffing winch brake set.
- (C) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the luffing pump shall be placed on stroke and the luffing winch brake released.
- (D) When the hoist block is raised to a maximum permissible height with respect to the boom, the luffing pump shall be placed on stroke and the luffing winch brake released.

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

60. As it pertains to the automatic hoist winch brake of an electro-hydraulic cargo-handling pedestal-type deck crane, what statement is true?

- (A) The brake is hydraulically set and spring released, and the brake automatically releases when the hoist pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (B) The brake is spring set and hydraulically released, and the brake automatically sets when the hoist pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (C) The brake is hydraulically set and spring released, and the brake automatically sets when the hoist pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.
- (D) The brake is spring set and hydraulically released, and the brake automatically releases when the hoist pump is brought to zero stroke or there is a loss of servo power hydraulic pressure.

*If choice B is selected set score to 1.*
61. Antifriction bearings can be removed undamaged from a shaft by using an arbor press, or wheel puller with a ________.
   • (A) jack screw
   • (B) split washer or backup ring
   • (C) split die
   • (D) ring gage

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

62. One of the consequences in continuing to operate a centrifugal bilge pump with the discharge valve closed, is that the __________.
   • (A) relief valve will open
   • (B) motor will overheat
   • (C) pump will overheat
   • (D) motor overload will open

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

63. In order to take suction on the lube oil drain tank cofferdam with the bilge pump shown in the illustration, how many suction side valves must be open? Illustration GS-0042
   • (A) One
   • (B) Two
   • (C) Three
   • (D) Four

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

64. Which of the following statements best describes the filtering ability of a fine mesh metal lube oil strainer?
   • (A) A 200 mesh screen has larger wires than a 100 mesh screen.
   • (B) A 200 wire mesh screen and a 100 wire mesh screen both prevent passage of the same size particles, but each allows a different number of particles to pass through.
   • (C) A 200 wire mesh screen will prevent passage of smaller particles than a 100 wire mesh screen.
   • (D) A 100 wire mesh screen will prevent passage of smaller particles than a 200 wire mesh screen.

*If choice C is selected set score to 1.*
65. The greatest difference between absorbent and adsorbent filters is that absorbent filters 
       _________.
       o (A) attract or have liquid contaminants stick to the surface of the filter media
       • (B) soak up liquid contaminants directly into the filter media
       o (C) will remove additives from the lube oil
       o (D) do not create pressure drops in the lube oil system

       If choice B is selected set score to 1.

66. Overheating of the oil in a hydraulic system can be caused by _________.
       o (A) insufficient external pump slippage
       o (B) fluctuating pump discharge pressure in response to normal load variations
       o (C) an increase in the number of the hydraulic fluid film layers
       • (D) continuous leakage through the pressure relief valve

       If choice D is selected set score to 1.

67. If dirt is allowed to contaminate the sump of a hydraulic deck crane, which of the following problems 
       will occur?
       • (A) The internal parts of the pump and hydraulic motor will wear excessively.
       o (B) The sheathing on the hydraulic lines will fracture.
       o (C) The lifting capacity of the crane will be immediately reduced by 70%.
       o (D) All the seals in the hydraulic lines will immediately blow out.

       If choice A is selected set score to 1.

68. A gradual decrease in the discharge pressure of an operating hydraulic pump can be caused by 
       _________.
       o (A) the four-way control valve failing to shift
       o (B) cold hydraulic fluid
       o (C) the bleeder valve sticking in the open position
       • (D) a clogged air vent filter on the oil reservoir

       If choice D is selected set score to 1.
69. Which of the following statements is true concerning the application for an isochronous governor?

- (A) An isochronous governor is ideally suited for a ship's geared propulsion drive driving through a fixed pitch propeller.
- (B) An isochronous governor is ideally suited for a pump drive associated with maintaining a constant pump discharge pressure.
- (C) An isochronous governor is ideally suited for a ship's direct-reversible propulsion drive driving through a fixed pitch propeller.
- (D) An isochronous governor is ideally suited for a ship's service alternator drive associated with maintaining a constant system frequency.

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

70. Which term represents the ability of a speed control governor to maintain prime mover speed without hunting?

- (A) Stability
- (B) Promptness
- (C) Dead band
- (D) Sensitivity

*If choice A is selected set score to 1.*
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Note: Inside dia. of Wearing Ring, PC No. (4) is .020 undersize outside dia. of Wearing Ring, PC No. (6) is .020 oversize when finished as repair parts and are designated as part No. 5 A3H180A-1 U/S and 3H180-1 O/S
GS-0017

Bushing
AISI 1095 SAE Carbon Steel
Hardened and Tempered
Designated Surfaces Ground
To Specified Tolerances
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Including Repair Parts and Special Tools List for Oil Water Separator
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Fresh Water Cooling Systems

MO-0212

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