U.S.C.G. Merchant Marine Exam

Third Assistant Engineer

Q532 Motor Plants II

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

1. Cooling the intake air supplied to a diesel engine will __________.
   - (A) reduce mean effective pressure
   - (B) decrease average compression ratio
   - (C) decrease air charge density
   - (D) increase peak power output

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

2. In a naturally aspirated diesel engine, the volumetric efficiency of the intake air charge is mainly influenced by the __________.
   - (A) compression ratio
   - (B) fuel injection pressure
   - (C) cylinder mean effective pressure
   - (D) valve size

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

3. The vessel to which you are assigned has main engines fitted with intake and exhaust systems as shown in the illustration. Assume that the vacuum between the air filter and the turbocharger blower inlet is 12" of water column (negative with respect to atmospheric pressure) when the engine is running at 50% of maximum, continuous rated load. What will happen to the suction vacuum when the load is increased to 100% of maximum continuous rated load? Illustration MO-0076
   - (A) The depth of vacuum will increase (reading more inches of water column negative with respect to atmospheric pressure).
   - (B) The depth of vacuum will decrease (reading less inches of water column negative with respect to atmospheric pressure).
   - (C) No change in the depth of vacuum will occur (reading the same inches of water column negative with respect to atmospheric pressure).
   - (D) A loss of vacuum will occur (now reading inches of water column positive with respect to atmospheric pressure).

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

4. Exhaust pipes for separate main propulsion diesel engines can be combined only when __________.
   - (A) space limitations prevent separately run pipes
   - (B) the engines are small auxiliary units
   - (C) they are arranged to prevent gas backflow to each engine
   - (D) a waste heat boiler is installed

   *If choice C is selected set score to 1.*
5. The instrument shown in the illustration would be used on a diesel engine to __________. Illustration MO-0031
   - (A) measure exhaust gas pressure
   - (B) measure concentration of chromate in jacket water
   - (C) measure cylinder compression or firing pressures
   - (D) balance exhaust gas temperature readings

   If choice C is selected set score to 1.

6. The diesel engine shown in the illustration can be fitted with a pyrometer at each exhaust elbow. If one of the cylinder pyrometers is reading significantly higher than the others, which of the following should be your FIRST action? Illustration MO-0005
   - (A) Check the pump rack setting.
   - (B) Examine the water outlet header for evidence of blockage.
   - (C) Replace the fuel injector nozzle.
   - (D) Examine the exhaust valves for evidence of burning.

   If choice A is selected set score to 1.

7. Marine diesel engine dry-type mufflers reduce noise by __________.
   - (A) using phase adjusters
   - (B) decreasing back pressure at the exhaust manifold
   - (C) constant pulse charging at the exhaust manifold
   - (D) allowing gases to expand and change direction of flow

   If choice D is selected set score to 1.

8. Excessive wear at part No.11, shown in the illustration would result in __________. Illustration MO-0027
   - (A) improper timing
   - (B) increased oil consumption
   - (C) lost compression
   - (D) low oil pressure

   If choice B is selected set score to 1.

9. Fuel injectors used in heavy fuel oil systems are usually provided with cooling to reduce __________.
   - (A) cold corrosion of the nozzles
   - (B) fuel viscosity for better atomization
   - (C) carbon accumulation on the nozzles
   - (D) fuel detonation in the cylinders

   If choice C is selected set score to 1.
10. In a diesel engine closed fresh water cooling system employing a radiator, proper water temperature can be obtained by __________.
   o (A) passing cooling water through the lube oil cooler
   o (B) piping exhaust gases across the radiator front
   o (C) passing cooling water through a space heater
   • (D) adjusting the radiator louvers

   If choice D is selected set score to 1.

11. Diesel engine closed, re-circulating cooling water systems are particularly prone to cavitation corrosion/erosion. Which of the listed cooling system/engine components has surfaces in contact with the coolant that are most susceptible to this type of corrosion and erosion?
   o (A) Cylinder head cooling water passages.
   o (B) Engine exhaust cooling water jackets.
   • (C) Wet-type cylinder liners.
   o (D) Cylinder cooling water jackets.

   If choice C is selected set score to 1.

12. What is the function of the device labeled "3" shown in the illustration? Illustration MO-0111
   o (A) The heat exchanger serves to heat the jacket water during cold water operation.
   o (B) The device specifically serves to remove the latent heat of vaporization from the jacket water.
   o (C) The jacket water cooler is used to raise the temperature of the sea water flowing through it.
   • (D) The cooler removes sensible heat from the jacket water.

   If choice D is selected set score to 1.

13. The operation of the lube oil cooler, shown in the illustration as item No.4, will be characterized by which of the following statements? Illustration MO-0111
   o (A) The temperature of the lube oil entering the cooler will decrease whenever the distiller is on line.
   • (B) The temperature of the sea water entering the cooler will be higher when operating with the distiller on line.
   o (C) The pressure of the lube oil to the cooler will increase whenever the distiller is on line.
   o (D) The pressure of the sea water to the lube oil cooler will increase with the distiller on line.

   If choice B is selected set score to 1.
14. Which operating parameter may need to be decreased when running a large main propulsion diesel engine at low load conditions?
   - (A) Cooling water flow through aftercoolers
   - (B) Control air supply pressure
   - (C) Fuel injection pressure
   - (D) Lube oil temperature

   If choice A is selected set score to 1.

15. Ethylene glycol, when used as a coolant in a closed cooling system for a diesel engine, is more advantageous than untreated raw water because it ________.
   - (A) has a lower freezing point and higher boiling point
   - (B) has a higher freezing point and a lower boiling point
   - (C) provides a constant pH below 7
   - (D) provides better vapor-phase cooling

   If choice A is selected set score to 1.

16. As a general rule, what would be the recommended operating water jacket outlet temperature range for medium-speed marine diesels setup with closed treated fresh water cooling systems and fitted with vented expansion tanks?
   - (A) 105° to 120°F
   - (B) 135° to 150°F
   - (C) 165° to 180°F
   - (D) 195° to 215°F

   If choice C is selected set score to 1.

17. What may cause a diesel engine cylinder head to crack?
   - (A) overheated intake valves
   - (B) heat transfer from exhaust valves
   - (C) a leaking oil control ring
   - (D) scale on cooling passages

   If choice D is selected set score to 1.
18. Some diesel engines are fitted with a thermometer in the cooling water outlet from each cylinder. If the cooling water temperature from all cylinders begins to rise above normal, you should suspect __________.

   o (A) increased blow-by in all cylinders
   o (B) incomplete combustion in all cylinders
   o (C) insufficient fuel delivery to all cylinders
   • (D) overloading in all cylinders

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

19. The average exhaust temperature of a two-stroke cycle diesel engine with a turbine-driven supercharger is lower than a similar four-stroke cycle diesel engine at equal loads because __________.

   o (A) two-stroke cycle diesel engines have a higher M.E.P. than four-stroke cycle diesel engines
   o (B) four-stroke cycle diesel engine exhaust is cooled by scavenging air
   • (C) two-stroke cycle diesel engines have a lower M.E.P. than four-stroke cycle diesel engines
   o (D) the opening of the two-stroke cycle diesel exhaust ports or valves occurs much later than in four-stroke cycle diesel engines

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

20. What is the function of the after coolers installed in the diesel engine air intake system?

   o (A) Decrease the air density.
   o (B) Increase the exhaust temperature.
   o (C) Decrease the lube oil temperature.
   • (D) Increase the air density.

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

21. Regarding the turbocharger shown in the illustration, the part labeled “B” would be attached to the __________. Illustration MO-0228

   o (A) nozzle ring
   o (B) silencer outlet
   o (C) exhaust manifold
   • (D) aftercooler inlet

*If choice D is selected set score to 1.*
22. Which of the turbocharging systems listed operates with the least average back pressure in the exhaust manifold?

- (A) Constant volume
- (B) Constant pressure
- (C) Pulse pressure
- (D) Radial flow

If choice C is selected set score to 1.

23. Which of the designs listed will keep the lobes from making contact in a Roots-type blower?

- (A) Drive chain
- (B) Blower timing gears
- (C) Air trapped between blower lobes
- (D) Oil filter between blower lobes

If choice B is selected set score to 1.

24. Air scavenging of the cylinder shown in the illustration begins between figures _________.

Illustration MO-0025

- (A) 2 and 3
- (B) 3 and 4
- (C) 4 and 5
- (D) 5 and 6

If choice B is selected set score to 1.

25. While underway on a slow-speed propulsion diesel, the duty engineer is alerted to a high scavenging air temperature at one cylinder. Which of the following could be a possible cause?

- (A) Blocked scavenging air cooler.
- (B) Scavenging air box fire at the piston underside.
- (C) Exhaust valve leakage due to a burned seat.
- (D) No water flow to the turbo-charger after cooler.

If choice B is selected set score to 1.

26. The power output of a turbo-charged diesel engine will drop if the cooling water flow through the after cooler is interrupted because the __________.

- (A) turbo-charger stalls
- (B) exhaust pressure increases
- (C) air charge density decreases
- (D) scavenge effect increases

If choice C is selected set score to 1.
27. Clutching takes place nearest the bearing shown in the illustration, located at number _____.
Illustration MO-0086

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

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

28. Reduction gear casings are vented in order to __________.

- (A) allow windage to exist for cooling the gears
- (B) avoid a buildup of pressure within the gear case
- (C) minimize lube oil foaming within the case
- (D) allow for axial clearance between the gears

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

29. How is lubrication provided to the device shown in the illustration? Illustration MO-0120

- (A) A separate system containing oil under extremely high-pressure is used due to its ability to provide a high film strength.
- (B) Only silicate ester based synthetic oils have the capability and necessary characteristics to be used in this type of application.
- (C) The lubrication system closely resembles the system used with standard line shaft bearings.
- (D) The lube oil enters through the supply pipes shown as #11 and eventually drains to the main engine sump.

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

30. When installing the bearing cap on the device shown in the illustration, which of the precautions listed must be observed? Illustration MO-0121

- (A) Prior to installing the cap, position the thrust shoes in their proper locations.
- (B) If the device is covered with abrasive material or contaminates, the unit may be reassembled, provided an abnormal method of reassembly is followed.
- (C) Once the bearing cap is properly torqued, measure the end gap dimensions to ascertain even tightening of the cap.
- (D) After applying anti-seize to the external threads, torque one side at a time to the appropriate values using a quality torque wrench.

*If choice C is selected set score to 1.*
31. When an additional load is applied to a diesel engine which is using an inadequately inflated air bladder clutch unit, you can expect __________.

- (A) pneumatic seizure
- (B) overheating because of slipping shoes
- (C) chipped reduction gear teeth
- (D) excessive wear on the thrust bearings

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

32. The pneumatic propulsion control system used on your vessel uses a diaphragm-operated relay valve as shown in the illustration. Periodically, the valve is to be disassembled for cleaning and inspection. What statement best describes the proper technique? Illustration MO-0052

- (A) Rubber parts such as the diaphragm should be washed with soap and water, and metal parts such as the valve discs and seats should be cleaned with non-flammable solvent.
- (B) Rubber parts such as the diaphragm and metal parts such as the valve discs and seats should all be washed with soap and water.
- (C) Rubber parts such as the diaphragm should be cleaned with non-flammable solvent, and metal parts such as the valve discs and seats should be washed with soap and water.
- (D) Rubber parts such as the diaphragm and metal parts such as the valve discs and seats should all be cleaned with non-flammable solvent.

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

33. The vessel to which you are assigned is fitted with a totally pneumatic propulsion control system as shown in the illustration. If propulsion control functions perfectly from the engine room control station, but will not function at all from any of the remote stations, which of the following system faults best accounts for these symptoms? Illustration MO-0168

- (A) The local/remote transfer valve at the engine room control station has a blocked local port.
- (B) The pilot house/remote transfer valve at the pilot house has a blocked remote port.
- (C) The attendance valve at the pneumatic remote-control station has a blocked outlet port.
- (D) The local/remote transfer valve at the engine room control station has a blocked remote port.

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

34. The direct acting mechanical governor used with some small diesel engines, controls fuel flow to the engine by __________.

- (A) governor flyweight action on a pilot valve which controls fuel injection
- (B) positioning a butterfly valve in the fuel delivery system
- (C) governor flyweight motion acting on fuel controls through suitable linkage
- (D) positioning a servomotor piston attached to the fuel controls

*If choice C is selected set score to 1.*
35. As the load is being decreased on the engine controlled by the governor shown in the illustration, the _________. Illustration MO-0092

- (A) pilot valve plunger will move down
- (B) speeder rod will move down
- (C) right hand end of the floating lever will move up
- (D) oil pressure under the power piston will increase

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

36. You are preparing to change the oil of the speed control governor on one of the main propulsion diesel engines on your vessel. What statement is true concerning the draining and flushing procedures?

- (A) The governor oil should be drained while the oil is cold and the governor should be flushed with the heaviest grade of the same type of oil.
- (B) The governor oil should be drained while the oil is hot and the governor should be flushed with the heaviest grade of the same type of oil.
- (C) The governor oil should be drained while the oil is cold and the governor should be flushed with the lightest grade of the same type of oil.
- (D) The governor oil should be drained while the oil is hot and the governor should be flushed with the lightest grade of the same type of oil.

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

37. Adjustments to the compensating needle valve in a hydraulic governor should be made with the engine at _________.

- (A) maximum power at a normal load
- (B) maximum power and load under normal conditions
- (C) half-speed and normal temperature
- (D) normal operating temperature without a load

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

38. In the illustrated auxiliary diesel engine governor, decreasing the distance between piece No.6 and piece No.10 will affect the engine by _________. Illustration MO-0094

- (A) decreasing the speed
- (B) increasing the speed droop setting
- (C) increasing the speed
- (D) decreasing the overspeed trip setting

*If choice C is selected set score to 1.*
39. A diesel engine operates erratically, overspeeds, and fails to restart when cranked at normal speed. Which of the following problems is the most likely cause for the engine failing to restart?

- (A) Improper governor operation due to excess oil pressure
- (B) Damage to the governor due to excessive speed
- (C) Failure to reset the overspeed trip
- (D) Failure to reposition the fuel rack

If choice C is selected set score to 1.

40. A main engine speed control governor for one of your vessel's main propulsion engines hunts, surges, or is sluggish to respond to load changes. Which of the following governor oil conditions would be the greatest single source of governor troubles?

- (A) Dirty oil (solid contaminants)
- (B) Foamy oil (air entrainment)
- (C) Wrong grade of oil (viscosity)
- (D) Wrong type of oil (composition)

If choice A is selected set score to 1.

41. The governor utilized with the device shown in the illustration has become inoperative while the vessel is underway at sea. Which of the following statements describes what action should be taken? Illustration MO-0119

- (A) It is necessary to disconnect the shuttle valve from the throttle lever horizontal bar, in order to effectively jump out the pneumatic engine enable control circuit.
- (B) The governor should be replaced with one that has been proven to be useful in isochronous applications.
- (C) The engine speed can be controlled using the fuel control lever without changing the position of the maximum fuel stop.
- (D) The linkage to the shut down servomotor and the governor output shaft must be disconnected in order to operate the engine via the fuel control lever.

If choice C is selected set score to 1.

42. Which type of energy conversion is associated with an operating steam boiler?

- (A) Specific
- (B) Mechanical
- (C) Thermal
- (D) Kinetic

If choice C is selected set score to 1.
43. According to the data given in illustration, which of the following would be the physical state of the fluid at a gage vacuum of 28.09 inches Hg, and 117.99 degrees Fahrenheit? Illustration SG-0026

- (A) Subcooled liquid.
- (B) Saturated liquid.
- (C) Superheated vapor.
- (D) Mixture of saturated liquid and vapor.

If choice C is selected set score to 1.

44. The greatest resistance to heat transfer from the fireside to the waterside of a water-tube boiler takes place in the __________.

- (A) steel tube wall itself
- (B) moving water and steam inside the tube
- (C) soot buildup directly on the tube exterior
- (D) gas film layer surrounding the tube

If choice D is selected set score to 1.

45. The purpose of the separating nozzle in the accumulator of a water-tube, coil-type, steam generator is to separate __________.

- (A) condensate from feedwater
- (B) superheated steam from saturated steam
- (C) dry steam from the steam and water mixture
- (D) sludge accumulations from feedwater

If choice C is selected set score to 1.

46. Large steam drums are not required in the design of a coil-type auxiliary water-tube boiler because __________.

- (A) automatic burner cycling controls steam volume and quality
- (B) the volume of steam is small at low pressures
- (C) the heat of combustion is sufficient to remove all moisture from the steam
- (D) the steam-water mixture that exits the coils is separated in a flash chamber

If choice D is selected set score to 1.

47. The boiler shown in the illustration would be classed as __________. Illustration MO-0064

- (A) single-pass, fire-tube, scotch marine
- (B) two-pass, water-tube
- (C) forced circulation, coil-type
- (D) two-pass, scotch marine

If choice A is selected set score to 1.
48. Which of the following statements concerning fire-tube boilers is correct?

- (A) Flames impinge on the tubes.
- (B) Combustion occurs in the tubes.
- (C) Combustion gases flow through the tubes.
- (D) Water flows through the tubes.

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

49. The pressuretrol which is installed on an auxiliary boiler senses steam pressure changes and __________.

- (A) controls the flow of feedwater to the boiler
- (B) monitors the boiler high water level
- (C) automatically regulates the quantity of oil and air flow to the burner
- (D) secures the fires when a fusible plug burns out

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

50. Which of the automatic boiler controls listed should be tested prior to lighting off an auxiliary boiler?

- (A) Automatic bottom blow valve
- (B) Voltage output of the ignition transformer
- (C) Low water level cutoff switch
- (D) Insulation resistance readings in the ignition system high tension leads

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

51. A variable capacity, pressure atomizing, fuel oil burner functions to __________.

- (A) maintain a constant fuel temperature
- (B) provide a constant fuel return pressure
- (C) provide a wide range of combustion
- (D) maintain smokeless fuel oil atomization

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

52. Control of the fuel oil metering valve in an automatically fired auxiliary boiler is accomplished by a __________.

- (A) pressure magnifying device in the steam coil outlet
- (B) metering device in the air supply line
- (C) steam pressure sensing device with linkage to the damper air vanes
- (D) signal from the feedwater electrode

*If choice C is selected set score to 1.*
53. On which of the following auxiliary boiler types would soot blowers most likely be fitted?

- (A) Water-tube forced-circulation steam boiler
- (B) Fire-tube steam boiler
- (C) Water-tube natural-circulation steam boiler
- (D) Electric steam boiler

If choice C is selected set score to 1.

54. The water-tube natural-circulation steam boiler on your vessel is equipped with soot blowers for maintaining heat transfer efficiency. Which of the following statements best describes the conditions that must be met before tubes can be safely blown using the soot blowers?

- (A) The boiler draft must be decreased AND the boiler fires must be secured before tubes can be safely blown.
- (B) The boiler draft must be increased AND the boiler fires must be lit before tubes can be safely blown.
- (C) The boiler draft must be increased AND the boiler fires must be secured before tubes can be safely blown.
- (D) The boiler draft must be decreased AND the boiler fires must be lit before tubes can be safely blown.

If choice B is selected set score to 1.

55. Why should the main steam stop valve of an auxiliary boiler be eased off its seat and then gently closed before lighting off?

- (A) To examine the valve stem for scars or nicks.
- (B) To check for a tight bonnet seal.
- (C) To ensure that the valve will not be seized shut when hot.
- (D) To check the valve packing.

If choice C is selected set score to 1.

56. What would be the most practical and efficient way of removing hard scale deposits from the watersides of the tubes of an auxiliary fire-tube boiler?

- (A) Use of a suitable acid.
- (B) Use of a high-pressure water jet.
- (C) Use of an air lance.
- (D) Use of a power-driven wire brush.

If choice A is selected set score to 1.
57. Which of the following conditions best describes the reason for performing a bottom blow on an auxiliary steam boiler as fitted on your vessel?

- (A) Priming and carryover.
- (B) Excess chemicals and/or salinity.
- (C) Sludge removal.
- (D) High water.

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

58. You are observing the flame condition on an oil-fired auxiliary boiler through an observation window peep-hole. The flame is a reddish color accompanied by a noticeably panting/pulsating furnace. What would be the correlating color of the gases exhausting from the stack under these conditions?

- (A) White smoke.
- (B) Dense black smoke.
- (C) Clear stack.
- (D) Light brown haze.

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

59. Which of the following conditions could cause the feed pump for an auxiliary boiler to lose suction?

- (A) Increased suction head pressure
- (B) Decreased feedwater temperature
- (C) Pump recirculating line being open too much
- (D) Excessive feedwater temperature

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

60. As shown in the illustration, the component labeled “G” would be identified as a ______. Illustration MO-0231

- (A) waste heat boiler circulating pump
- (B) boiler water feed pump
- (C) main condensate pump
- (D) fuel oil service pump

*If choice A is selected set score to 1.*
61. While preparing an engine for departure, the engineer notices water coming from both the waste heat boiler and turbocharger drains. Which of the following could be the cause?

- (A) Leak from a cylinder exhaust valve cage.
- (B) Leak from a turbocharger inlet casing.
- (C) Leak in a waste heat boiler tube.
- (D) Leak in a turbocharger exhaust casing.

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

62. As shown in the illustration, if the vessel was operating at full sea speed, the area labeled "L" would be used to ________. Illustration MO-0231

- (A) collect stack gas
- (B) superheat the steam generated by the oil-fired mechanical burner
- (C) preheat the feedwater to the waste heat boiler
- (D) collect steam and flash the heated water generated in area "B" into steam

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

63. The correct procedure for giving an auxiliary boiler a bottom blow, is to begin __________.

- (A) when the boiler has been cooled to ambient temperature
- (B) only after raising the water level to within 1/2 inch of the high-water cutout
- (C) when the boiler has been secured long enough for most solids to settle
- (D) only after bypassing the low-pressure pressuretrol

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

64. The water in an auxiliary boiler should be tested for chloride content to determine __________.

- (A) total dissolved solids
- (B) water hardness
- (C) salt contamination
- (D) chlorine contamination

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

65. What is the best way of stopping an overspeeding diesel engine?

- (A) Disconnect the battery cables from the starting motor.
- (B) Drain the hydraulic fluid from the governor sump.
- (C) Secure the fuel supply and block the air intake.
- (D) Block the flow of cooling air to the radiator.

*If choice C is selected set score to 1.*
66. When rolling over a main engine on your vessel prior to starting with the cylinder test valves open to expel any fluids accumulated within the cylinders, a rather large amount of water is discharged. What is the appropriate response?

- (A) Start the engine, but maintain the jacket water expansion tank level higher than normal.
- (B) Do not allow the engine to be started until the cause of the water discharge has been determined and corrected.
- (C) Start the engine, but monitor all fluid levels very closely, especially that of the jacket water.
- (D) Start the engine, but run the engine with the cylinder test valves cracked slightly open.

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

67. Which of the listed conditions could result in the failure of an auxiliary diesel engine to stop running when a normal shutdown is attempted?

- (A) Supplying high temperature inlet air.
- (B) Maintaining a high exhaust back pressure.
- (C) Lube oil entering in the air intake manifold.
- (D) Carbon buildup on the overspeed pawl.

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

68. After a main diesel engine on your vessel has experienced a safety shutdown due to excessive crankcase pressure, why is it important to wait 2 hours before opening the crankcase to investigate the cause of the trip?

- (A) Opening the crankcase before 2 hours has elapsed may result in excessively rapid cooling.
- (B) Opening the crankcase before 2 hours has elapsed may result in crankshaft rotation.
- (C) Opening the crankcase before 2 hours has elapsed may result in a crankcase explosion.
- (D) Opening the crankcase before 2 hours has elapsed may result in the engine spontaneously restarting.

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

69. If a diesel engine has been stopped because of piston seizure due to severe overheating, the crankcase ________.

- (A) ventilation system should be continued in operation for one hour for cooling
- (B) explosion covers should be opened slightly to provide extra ventilation
- (C) scavenge pump should be immediately secured to prevent loss of lube oil
- (D) inspection covers should not be opened until the engine has cooled

*If choice D is selected set score to 1.*
70. A main diesel engine on your vessel has experienced a safety shutdown due to excessive crankcase pressure. What is the appropriate response?

- (A) Immediately restart the engine, and monitor the crankcase pressure to verify the cause of the shutdown.
- (B) Immediately open the crankcase to make the necessary inspections to determine the cause of the high crankcase pressure safety shutdown.
- (C) Allow the engine to cool off for two minutes, then restart and monitor the crankcase pressure to verify the cause of the shutdown.
- (D) Allow 2 hours for the engine to cool before opening the crankcase, and determine and correct the cause of the trip before attempting to restart the engine.

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

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<th>Max. play (worn)</th>
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**RND 68**

Principal Clearances
Crankshaft and Thrust Bearing

All dimensions in mm

7 354 366 - E

Adapted for testing purposes only from SULZER, Description of and Operating Instructions for Sulzer Diesel Engines RND-M

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10/22/2018
MO-0168
Pneumatic Propulsion Control System

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10/25/2018
### Properties of Saturated Steam

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