

SEP 2025

Q1 (16 marks)

Describe the examination you will carry out on the following parts of an air compressor:

- (a) Suction and delivery valves and seats (4)
- (b) Relief valves and bursting discs (4)
- (c) Coolers and cooling passages (4)
- (d) Piston and piston rings (4)

Apr 2025 - 1

Q2 (16 marks)

The exhaust temperature of an auxiliary diesel engine is found to be excessive and uneven at normal load with dark exhaust at the funnel.

Describe the following:

- (a) an investigation into the situation; (5)
- (b) the procedure to remedy the immediate problems, an identified; (6)
- (c) any further action that might be considered necessary. (5)

Troubleshooting

Apr 2025 - 1

Dec 2024 - 1

Apr 2024 - 2

Q3 (16 marks)

A centrifugal pump has been opening up due to abnormal noise:

- (a) List the checks you would carry out on the various components; (4)
- (b) Name the parts which may require replacement; (4)
- (c) Checks to be carried out after assembly; (4)
- (d) Operational parameters, which may be required to be compared with manufacturers test record. (4)

Pumps & system

Apr 2025 - 1

Q4 (16 marks)

With reference to auxiliary boilers:

- (a) Briefly describe the maintenance procedures for oil burning equipment. (5)
- (b) Explain the need for, and the use of, soot blowers. (5)
- (c) Describe how a boiler should be taken out of service. (6)

Apr 2025 - 1

Q5 (16 marks)

An air cooler of a large two stroke marine diesel engine is showing poor performance. Suggest some measures you would initiate to rectify the problem and improve the performance. (16)

Engine Performance

Apr 2025 - 1

Q6 (16 marks)

Briefly explain the following:

- (a) How would you know a Refrigeration system is 'undercharged'? (4)
- (b) What should you do to ensure that there is no water leakage into the engine cylinder before starting main engine for sea? (4)
- (c) What would be the probable cause of a rise in the level of the lub oil sump tank of a main engine? (4)
- (d) How does the valve rotator as fitted on an exhaust valve of aux. engine work? (4)

Troubleshooting

Apr 2025 - 1

Q7 (16 marks)

With reference to Steering Gear & Hydraulic Power Rotary pumps:

- (a) Explain how the reserve of fluid in the system is checked and how make up is achieved. (5)
- (b) Describe how a steering system is tested prior to leaving port with reference to SOLAS. (5)
- (c) Explain how tests are made for leaks, and air and other gases are bled from the system. (6)

Duties & watchkeeping

Apr 2025 - 1

Q8 (16 marks)

(a) What are some key components of a heat exchanger that you would examine closely during a maintenance check? (8)

(b) How is leakage detected in plate-type and shell-and-tube heat exchangers? (8)

Q9 (16 marks)

With reference to stuffing box of a two stroke main engine explain following:

(a) Why stuffing box is required in two stroke diesel engines. (8)

(b) Explain the maintenance carried out on stuffing box during piston overhaul. (8)

Piston

Apr 2025 - 1

Apr 2024 - 2