

CHIEF ENGINEER STATUTORY AND OPERATIONAL REQUIREMENTS

Attempt ALL questions

Marks for each part question are shown in brackets

1. Describe the procedure for using the local, emergency steering position, should the bridge control system become inoperative. (10)

2. With reference to the International MARPOL Convention Annex V pollution of the sea by garbage:
 - (a) list SIX special areas that apply to the disposal of garbage; (6)
 - (b) state the disposal restrictions that are placed on EACH of the following categories of garbage within the various special areas:
 - (i) operational waste; (1)
 - (ii) ground-up food waste. (3)

3. (a) State FOUR reasons why an Engine Room Log should be completed. (4)
(b) List SIX typical Engine Room Log entries. (6)

4. With reference to the International Convention on Load Lines:
 - (a) list SIX different trading areas that are applied to the measurement of the freeboard of a vessel; (2)
 - (b) outline FOUR circumstances that would cause a vessel to infringe the Load Line regulations if it attempted to proceed to sea. (8)

5. With reference to a tender launching and recovery lifting appliance:
 - (a) state FOUR safety requirements that need to be complied with before the rig can be safely used; (4)
 - (b) state the periodic inspection and testing requirements for the rig; (4)
 - (c) state where the results of inspections and testing are recorded. (2)

6. With reference to plant monitoring as part of a planned maintenance system:
- (a) list FOUR ways in which a machinery plant can be monitored by human senses; (4)
 - (b) describe how the information obtained by the means listed in part (a) could be used in augmenting a planned maintenance system. (6)
7. With reference to vessel survey requirements:
- (a) list TWO ways in which a tank can be tested for watertight integrity; (2)
 - (b) describe how the tests listed in part (a) should be carried out. (8)
8. (a) Describe the basic construction and operation of a Vertical Ship Lift. (6)
- (b) List TWO advantages and TWO disadvantages of a Vertical Ship Lift. (4)
9. (a) After 3 days on passage the vessel by observation has travelled 1080 Nm, but the calculated distance from engine revolutions should be 1144.8 Nm.
- Calculate the speed of the vessel and the percentage propeller slip. (4)
- (b) Assuming the percentage slip and speed calculated in part (a) are constant.
- Calculate the fuel requirements, to two decimal places, for a voyage of 2000 Nm, with a displacement of 1500 tonnes, given the designer's fuel coefficient for the vessel is 54,000.
- Note - Include a safety margin of 15% fuel reserve.* (6)
10. Write Chief Engineers Officer standing orders detailing the procedures to be followed in the event of EACH of the following:
- (a) a fire within the engine room; (5)
 - (b) a severe flooding incident within the engine room. (5)