

OPERATIONAL PROCEDURES, BASIC HOTEL SERVICES AND SHIP CONSTRUCTION

Attempt ALL questions
Marks for each part question are shown in brackets

1. With reference to dangerous (enclosed) spaces onboard a vessel:
- (a) state FOUR different examples; ✓ ✓ (4)
- (b) explain why the atmosphere may be dangerous. ✓ (6)
2. (a) State, with reasons, where the watch should be handed over on a vessel fitted with a UMS system, where the period of duty is 24 hours. ? (2)
- (b) Outline the responsibility of the duty engineer with respect to EACH of the following:
- (i) the Systems Status Board; ? ? ? (3)
- (ii) the Oil Record Book; ? (3)
- (iii) the main and auxiliary Machinery Maintenance Record Book. ? ? (2)
3. With reference to MARPOL Annex V, garbage record book: ✓ ✓ (10)
- (a) state the type of vessel to which the regulation applies; ✓ (1)
- (b) list the NINE categories into which garbage is grouped for the purpose of the garbage record book. ✓ (9)
4. With reference to bunkering of marine diesel oil:
- (a) state THREE possible consequences of water contamination of the fuel; ✓ (3)
- (b) state THREE sources of contamination of fuel by water on board a vessel; ✓ (3)
- (c) describe TWO separate tests which would indicate the presence of water in the fuel. ✓ (4)
5. With reference to sewage treatment plants:
- (a) describe the biological operating principle of an aerobic sewage treatment plant, explaining the dangers if a supply of oxygen is not present; ✓ (8)
- (b) state how a sufficient supply of oxygen is ensured. ✓ (2)

6. With reference to refrigeration plant; ✓ (10) ✓ (3)
- (a) state THREE indications of a loss in refrigerant charge; ✓ (3)
- (b) state THREE methods of detecting the location of the source of leakage; ✓ (4)
- (c) describe a safe method of bringing the gas charge back to its normal working level. ✓
7. (a) Describe, with the aid of a sketch, a reverse osmosis plant, from feed water inlet, to product tank, labelling ALL components and showing the position in the system of the monitoring instruments. ✓ (10) (7)
- (b) Describe the feed water pre-treatment process before the water enters the spirally wound membrane modules. ✓ (3)
8. (a) Describe, with the aid of a sketch, the method of attachment of a Bilge Keel to a vessel's hull, explaining the reason for the longitudinal position of the bilge keel, relative to the hull. ✓ (1/2) (7)
- (b) State the advantages and disadvantages of fitting a bilge keel compared with other methods of stabilisation. ✓ (3)
9. (a) State FIVE monthly checks which should be carried out on fire fighting equipment. ✓ (5)
- (b) State FIVE yearly checks which should be carried out on fire fighting equipment. ✓ (5)
10. (a) Explain the meaning of EACH of the following terms: (10)
- (i) camber; ✓ (2)
- (ii) sheer. ✓ (2)
- (b) Describe how EACH of the terms explained in part (a) improve seaworthiness. ✓ (6)