

OPERATIONAL PROCEDURES, BASIC HOTEL SERVICES AND SHIP CONSTRUCTION

Attempt ALL questions

Marks for each part question are shown in brackets

1. Describe the method of testing EACH of the following:
 - (a) a bilge high level alarm switch; (3)
 - (b) a diesel engine cooling water high temperature alarm probe; (3)
 - (c) an oil mist detector. (4)

2. State the action to be taken by the watch keeping engineer in the event of EACH of the following:
 - (a) flooding; (6)
 - (b) failure of main propulsion machinery. (4)

3.
 - (a) State the purpose of a planned maintenance system. (4)
 - (b) State THREE parameters on which planned maintenance may be based. (3)
 - (c) State how an approved planned maintenance system can influence classification society requirements. (3)

4. With reference to Oily Water Separators (OWS) and the pumping of bilges, explain EACH of the following:
 - (a) why a positive displacement pump is preferable to a centrifugal pump as the main bilge pump; (2)
 - (b) why it is important that the flow rate to the separator is not exceeded; (2)
 - (c) why the discharge overboard line should be higher than the OWS; (2)
 - (d) how detergents used for bilge cleaning can affect the operation of the separator; (2)
 - (e) why an air release is fitted to the top of the shell of the OWS, (2)

5. With reference to microbiological contamination of marine gas oil:
- (a) state the conditions that must be present for the microbes to live and multiply; (2)
 - (b) describe the effect of microbiological growth in the fuel; (2)
 - (c) explain how the contamination may be detected; (2)
 - (d) state how the risk of contamination may be reduced; (2)
 - (e) explain how the contamination may be removed. (2)
6. With reference to sewage treatment plants:
- (a) state the purpose of the vent, and explain why it is fitted with a gauze; (3)
 - (b) explain the difference between aerobic and anaerobic micro organisms; (3)
 - (c) explain why air is bubbled through the effluent in the aeration tank; (2)
 - (d) explain why calcium hypochlorite is added to the treated sewage before discharge overboard. (2)
7. (a) With reference to food storage rooms:
- (i) state, with reasons, the possible danger present in a room used for storing vegetables and fruit; (2)
 - (ii) state the devices necessary to prevent a person from becoming trapped in a storage room. (3)
- (b) State **FOUR** methods of detecting a refrigeration gas leak. (4)
- (c) State the name of the international agreement which stipulates that the production and consumption of compounds that deplete ozone in the stratosphere is phased out. (1)
8. Explain, with the aid of sketches, the principles of reverse osmosis as a method of producing fresh water. (10)
9. List the important operations that should be included when organising fire drills. (10)

10. With reference to ocean going vessels, define EACH of the following:
- (a) trim;
 - (b) freeboard;
 - (c) camber;
 - (d) length between perpendiculars;
 - (e) length overall;
 - (f) sheer;
 - (g) stem;
 - (h) draft marks;
 - (i) draft;
 - (j) depth.