

AUXILIARY EQUIPMENT PART II

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

1. Describe, with the aid of a sketch, the operation of a variable delivery axial piston pump. (10)
2. Explain the operation of the hydraulic system shown in figure. (10)

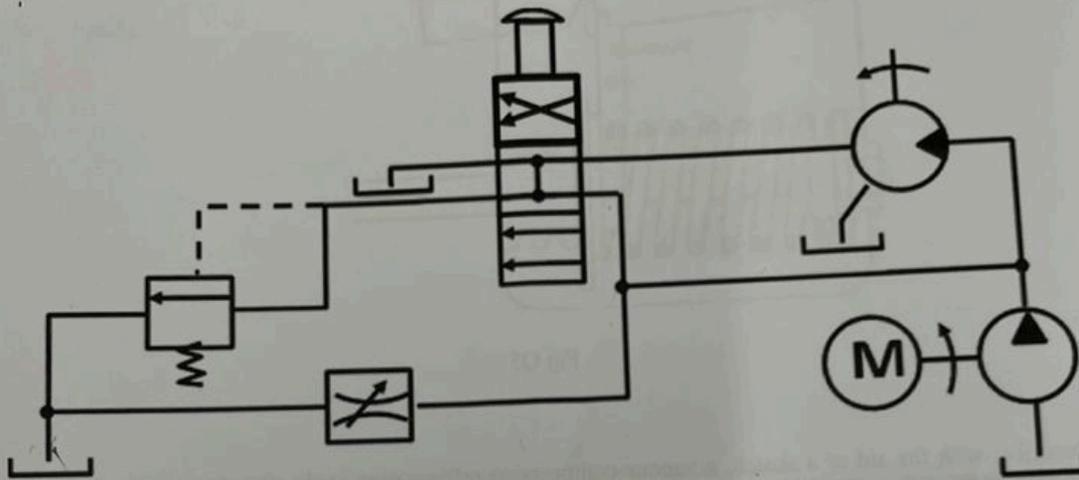


Fig Q2

3. With reference to load sharing of a.c. generators:
 - (a) state the meaning of the term *speed droop*; (3)
 - (b) explain the effect of running generators in parallel with different speed droop settings for EACH of the following:
 - (i) when the generators are sharing the load equally; (3)
 - (ii) when the load suddenly increases. (4)
4. With reference to a 440 Volt, 3-phase motor supplied with six terminal connections in the terminal box:
 - (a) sketch a Delta connection, showing the relationship between phase and line voltages; (2)
 - (b) sketch a Star connection, showing the relationship between phase and line voltages; (2)
 - (c) state the relative speed of both connections; (2)
 - (d) sketch and label the terminal link connections so the motor will run in permanent Delta mode. (4)

5. (a) State **THREE** reasons for the operation of a *High Pressure Cut-out* in a vapour compression refrigeration system. (3)
- (b) Describe the operation of the High Pressure Cut-Out, employed in a vapour compression refrigeration system shown in the figure. (7)

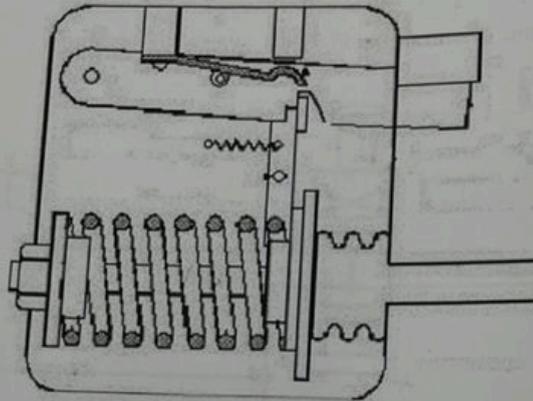


Fig Q5

6. Describe, with the aid of a sketch, a vapour-compression refrigeration cycle, showing clearly the physical state and condition of the refrigerant in the system. (10)
7. With reference to the Code of Safe Working Practices for Merchant Seamen and maintenance of lifting equipment:
 - (a) outline **FIVE** maintenance procedures to be carried out on lifting equipment (excluding loose gear); (5)
 - (b) state who should carry out the examination of the lifting equipment, the interval between examinations and the defects that may be found. (5)
8. Explain the requirements for the stowage and operation of LPG cylinders. (10)
9. Explain, with the aid of sketches, the dynamic stresses encountered by a vessel in a seaway as a wave moves along the length of the hull. (10)

10. With reference to stresses and strain in vessels, describe, with the aid of a sketch, EACH of the following:

- (a) panting: (2)
- (b) pounding: (2)
- (c) racking: (2)
- (d) hogging: (2)
- (e) sagging: (2)