B. Tech Degree IV Semester Examination in Marine Engineering July 2010

MRE 405 MARINE AUXILIARY MACHINERY -I

Time : 3 Hours Maximum Marks : 100

(Each question carries 20 marks)

I. Sketch and describe the bilge and ballast lines of a cargo ship including the position of oily water separator. Explain the types of valves used in the suction lines of bilge and ballast systems and why?

OR

II. Sketch and describe the fuel oil system of a cargo ship including bunkering lines. Explain bunkering procedures and precautions to be taken during bunkering.

III. Sketch and describe a 2 stage air compressor with pressures and temperatures at each stage. Explain the importance of checking clearance volume during compressor overhaul.

OR

IV. Sketch and describe a high vaccum submerged tube evaporator with heater nest, demister, condenser nest, distilled water pump etc. Explain how the diesel engine jacket cooling water is able to boil the sea water.

V. Sketch and describe an oily water separator and state the oil content allowed to be pumped overboard as per MARPOL regulations. Explain with a sketch a monitoring unit to measure the oil content and operate the 3 way valve in the bilge overboard line when the oil content limit is exceeded.

OR

VI. Write short notes on:

(i) Aims and organization set up of IMO
(ii) The effects of oil discharged into the sea
(iii) MARPOL 73/78
(iv) Annexes of MARPOL 73/78.

VII. Sketch the describe a hydraulic windlass and explain the advantages of hydraulic windlass over electrically operated windlass.

OR

VIII. Sketch and describe a tubular heat exchanger and explain how the expansion of tube nest is taken care of in the design. Why anodes are fitted inside the heat exchangers and how the leakage in a tube is detected and plugged?

IX. Explain the theory of fuel oil purification. Sketch and describe a fuel oil purifier and state the difference between a purifier and a clarifier. What is self-desludging purifier?

OR

X. What are the uses of settling and service tanks? Explain how a fuel tank is cleaned for inspection and repairs. What are the precautions to be taken before entering a fuel tank?

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