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10MR54

Fifth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Marine Auxiliary Machinery – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Sketch and describe the layout of main engine and auxiliary machineries in different decks of a cargo ship. (10 Marks)
b. Explain with the help of a neat line diagram the lub oil system on-board a ship. (10 Marks)
- 2 a. Sketch and describe the fuel oil transfer system of a cargo ship. Explain bunkering procedures and precautions to be taken during bunkering. (12 Marks)
b. Explain with a neat sketch duplex type of filter indicating different components related to it. Also explain the step by step cleaning procedure for duplex filters. (08 Marks)
- 3 a. Write a short note on: i) Centrifugal pump; ii) Gear pump; iii) Screw pump. (12 Marks)
b. What are the precautions and checks to be made before starting a centrifugal pump and also describe the overhauling of a centrifugal pump? (08 Marks)
- 4 a. Describe the working of a 2-stage reciprocating air compressor used on board ship. Why the clearance volume should be kept as small as possible? (10 Marks)
b. Describe with a neat sketch the process of fresh water generation by low pressure evaporation on-board a ship. (10 Marks)

PART – B

- 5 a. Sketch and describe a shell and tube type heat exchanger and explain the procedure of pressure testing of heat exchanger and plugging of tubes. (12 Marks)
b. Sketch and describe a bilge oil separator used on board ships. (08 Marks)
- 6 a. Explain the theory of oil purification. Describe with a neat sketch the working of heavy fuel oil purifier. (12 Marks)
b. Explain the following shipboard lubricating oil tests for: i) Alkalinity; ii) Viscosity; iii) Crackle test for water in oil; iv) Dispersiveness and contamination. (08 Marks)
- 7 a. Sketch and explain the electro-hydraulic rotary vane steering gear. (10 Marks)
b. Explain with a neat sketch the oil lubricated stern tube. (10 Marks)
- 8 a. Explain with the help of a sketch the aerobic sewage treatment system (Hamworthy type). (10 Marks)
b. What is dry dock and why it is done? Explain the various dry dock methods. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any eye-seeing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.