

B. Tech Degree VIII Semester Examination in Marine Engineering June 2011

MRE 803 MARINE MACHINERY SYSTEM DESIGN

Time : 3 Hours

Maximum Marks : 100

- I. (a) What are the design considerations of a product for which fabrication (cutting, welding and machining) is the preferred mode of production? (12)
(b) What different modes of production are available for manufacturing machinery components? (8)
- OR**
- II. (a) What are the advantages/disadvantages of engineering plastic as a material for making machinery components? (10)
(b) Describe the special considerations to be given while designing a machinery component for use on board a ship. (10)
- III. (a) Describe the stresses that a 2-stroke diesel engine connecting rod is subjected to and how these are taken care of during its design. (10)
(b) Explain the design aspects of a cross-head of a marine diesel engine. (10)
- OR**
- IV. (a) Explain the functions of safety valves and reducing valves, highlighting their similarities and differences. How do the designs take care of the basic requirements? (12)
(b) What are the different types of springs commonly used in machinery installed on board the ships? Explain the major points to be considered while designing them. (8)
- V. Describe the design process of the propeller shaft and intermediate shaft of low speed Marine Propulsion System. (20)
- OR**
- VI. List and sketch different types of heat exchangers used in a modern diesel driven ship and describe their design considerations. (20)
- VII. Describe the compressed air system of a diesel ship emphasizing how the operational and safety requirements are taken care of while designing the system. (20)
- OR**
- VIII. Describe the equipments used in the purifying system of a diesel ship and explain how the operational requirements are met by the design of the system. (20)
- IX. What are the factors to be considered while designing?
(a) The fire-fighting system of a modern crude oil carrier. (10)
(b) The fire-fighting system of a modern general cargo vessel. (10)
- OR**
- X. (a) Describe the design aspects of a Life Boat and its launching device installed on a modern vessel. (10)
(b) Describe the design aspects of the Refrigeration System installed on a Cargo ship meant to carry frozen cargo. (10)