

## ***B.Tech Degree VIII Semester Examination in Marine Engineering June 2012***

### **MRE 803 MARINE MACHINERY SYSTEM DESIGN**

Time : 3 Hours

Maximum Marks : 100

- I. (a) Explain the important design considerations for casting of a machinery component. (10)
- (b) What are the different modes of productions of machinery parts? (10)
- OR**
- II. (a) Describe the advantages and disadvantages of engineering plastic as material for manufacturing machinery parts. (10)
- (b) While design an I.C. Engine Crank Shaft, what are the design considerations to be applied? (10)
- III. (a) Discuss the nature of stresses that a two stroke Diesel Engine connecting rod is subjected to and how it is taken care of during designing. (10)
- (b) Explain the method of design of an I.C Engine journal bearing and describe the materials used for the bearing. (10)
- OR**
- IV. Write notes on:
- (i) Design considerations of an I.C. Engine Piston. (5)
- (ii) Statutory requirement in designing a boiler safety valve. (5)
- (iii) Materials used for Main Engine thrust bearing and bearing design. (5)
- (iv) Design of engine room overhead crane – important considerations. (5)
- V. Sketch and describe the layout of a propeller shafting system in a ship having fixed pitch propeller. What are the components incorporated in it. (20)
- OR**
- VI. Sketch and describe two different types of heat exchangers used in diesel and steam engine plants. Discuss the important design considerations of heat exchangers. (20)
- VII. Describe with simple sketch, lubricating oil system of an I.C. Engine. Discuss the important design considerations of the system. (20)
- OR**
- VIII. Explain the method of designing of an electro-hydraulic steering system of a ship. What are the important points to be considered while designing? (20)
- IX. Draw a sketch of launching device of a ship's life boat. Discuss important points on designing the system. (20)
- OR**
- X. Write notes on the following in consideration to its system design in a ship.
- (i) Refrigeration plant (5)
- (ii) Co<sub>2</sub> flooding system (5)
- (iii) Emergency fire pump (5)
- (iv) Fuel injectors (5)