

## ***B. Tech Degree VIII Semester Examination in Marine Engineering, December 2007***

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

Time : 3 Hours

Maximum Marks : 100

- I. (a) Explain in detail the basic design considerations for casting. (10)  
 (b) Describe the terms 'Fits and Tolerance' and 'Surface Finish'. (10)  
**OR**
- II. (a) What are the different methods used for manufacturing components? (10)  
 (b) Explain in detail the basic design considerations for forging. (10)
- III. (a) Explain the important factors to be considered while designing a diesel engine crankshaft. (12)  
 (b) For manufacturing the piston of an IC engine, what are design considerations to be applied? (8)  
**OR**
- IV. (a) Sketch and explain the design aspects of connecting rod of an IC engine. (10)  
 (b) While designing the fly wheel of an IC engine, what are the important factors you would consider? (10)
- V. Describe in detail the design considerations for the cooling water system, including all components, of an IC engine and draw the typical cooling water system of an IC engine. (20)  
**OR**
- VI. Sketch and explain the different types of heat exchanges used for diesel and steam engine plants. What are the important design considerations to be applied? (20)
- VII. Sketch and explain the typical lubricating oil system, including all components of an IC engine citing the important design considerations to be applied. (20)  
**OR**
- VIII. Describe the important factors to be considered while designing the Main engine air starting system of a marine diesel engine. (20)
- IX. Write short notes on the design aspects of :  
 (i) Refrigeration plant (10)  
 (ii) Bulk CO<sub>2</sub> system. (10)  
**OR**
- X. Sketch and explain the typical Fuel Injection System of a marine diesel engine including the various design considerations to be applied for the system. (20)

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