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***B.Tech. Degree VIII Semester Examination in Marine Engineering
July 2018***

**MRE 1803 MARINE MACHINERY SYSTEM DESIGN
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) What are the different modes of production of machinery parts? (10)
 (b) What are the design considerations taken into account while designing an I.C engine crank shaft? (10)
- OR**
- II. Briefly explain the factors you will consider while designing engineering components. (20)
- III. Write short notes on: (20)
 (i) Boiler safety valve (ii) Thrust bearing in a shafting system
 (iii) Engine room overhead crane (iv) Flywheel
- OR**
- IV. Explain in detail different types of loads acting on the crank shaft of a marine diesel engine. Based on the above, what are the considerations applied while designing a crank shaft? (20)
- 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. Describe the design process of the propeller shaft and intermediate shaft of slow speed marine propulsion system. (20)
- VII. Describe with simple sketch, the lubricating oil system of a 2 stroke marine diesel engine. Discuss the important design considerations of this system. (20)
- OR**
- VIII. Explain in detail the requirements of an electro hydraulic steering system used onboard oil tankers of one lakh tones dead weight and above. (20)
- IX. What are the different factors to be considered while designing scavenge and exhaust system of a marine diesel engine? (20)
- OR**
- X. Write short notes on the factors taken into account while designing the following systems/components of a ship. (20)
 (i) Refrigeration plant
 (ii) CO₂ flooding system
 (iii) Emergency fire pump
 (iv) Diesel engine fuel injectors