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***B.Tech. Degree VII Semester Examination in Marine Engineering
February 2021***

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

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Describe briefly the various methods used for the manufacturing of the components of Marine Diesel engines. (10)
- (b) Explain clearly the terms “machine tolerances” and “surface finish” with respect to manufacturing of engine components. (10)
- OR**
- II. Describe in detail the various factors to be taken into consideration for designing the different marine engine machinery installed onboard merchant ships. (20)
- III. (a) Explain the factors to be considered for the design of a Marine engine crank shaft. (10)
- (b) Sketch and describe the thrust bearing used in a merchant ship. (10)
- OR**
- IV. (a) Describe the various factors to be considered for the design of the piston of a 2 stroke marine diesel engine. (10)
- (b) Various important factors are to be taken into consideration while designing of a propeller shaft system. Explain in detail each one of them. (10)
- V. Sketch and explain in detail the working of a power transmission system including thrust blocks, intermediate shaft and tail end shaft. (20)
- OR**
- VI. With the help of a sketch describe the fresh water cooling system including filters, pump and heat exchangers for a diesel engine plant. (20)
- VII. Sketch and describe the lubricating oil system of a 2 stroke marine diesel engine. (20)
- OR**
- VIII. Sketch and describe an air starting system including air receivers, air compressors, air starting valve and the safety devices for the system of a 2 stroke marine diesel engine. (20)
- IX. With the help of sketches, describe the various types of scavenging system used in a 2 stroke diesel engine. Explain the advantages and disadvantages of each one of them. (20)
- OR**
- X. Describe with sketches (i) Fire fighting system including emergency fire pump (ii) Bulk CO₂ system. (20)