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***B.Tech. Degree V Semester Regular / Supplementary Examination in
Marine Engineering December 2020***

**MRE 1502 MARINE BOILER AND STEAM ENGINEERING
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) What are the advantages of water tube boilers over fire tube boilers? (8)
 (b) Why flat surface in boiler to be strengthened with stays and the type of stays used in boiler? (12)
- OR**
- II. (a) Explain destructive and non-destructive tests carried on boiler plates. Why compensating pad is fitted in boiler? (10)
 (b) Sketch and describe a manhole door. Why the manhole door minor axis kept parallel to the longitudinal axis of boiler? (10)
- III. Sketch and describe a Cochran composite boiler. Why ogee ring is fitted to the furnace? (20)
- OR**
- IV. (a) Describe the procedure for gauge glass blow through. Safety provided in gauge glass if the glass shatters. (8)
 (b) What are the boiler mountings and its functions? (12)
- V. (a) How to prepare the boiler for the inspection of surveyor? (12)
 (b) Explain water hammer, suspended flame, easing gear in safety valve and attemperator. (8)
- OR**
- VI. (a) Explain with sketch the working of the pressure jet burner. (10)
 (b) Explain the cold starting of the boiler of a turbine. (10)
- VII. (a) Materials used for hp casing, lp casing, blades, rotors, nozzles, glands. (10)
 (b) Explain construction features of double casing turbine. (10)
- OR**
- VIII. (a) Explain the difference between impulse and reaction turbine. (8)
 (b) What are the types of blades and how the blades, nozzles and diaphragm are fixed? (12)
- IX. (a) Briefly explain construction details of condenser, position of condenser and drainage. (12)
 (b) What is the primary function of a condensing plant of a turbine? Explain Dalton's law as applied for mixture of air and water vapour. (8)
- OR**
- X. (a) How the leakage is detected in condenser and what are the causes of loss of vacuum? (10)
 (b) Explain the procedure to put the turbine plant for warming up. (10)