

***B. Tech Degree V Semester Examination in
Marine Engineering December 2013***

MRE 502 MARINE BOILERS AND STEAM ENGINEERING

Time : 3 Hours

Maximum Marks : 100

- I. (a) Describe the destructive and non-destructive tests carried out on plates and rivets used for boiler construction. (8)
(b) Sketch and describe a standard Cochran fire tube boiler with all important dimensions. (12)

OR

- II. (a) Explain the advantages of water tube boilers over the smoke tube boilers (8)
(b) Sketch and describe an ESD-II-D type water tube boiler. (12)

- III. (a) Describe with the help of a sketch, the Loeffler make forced steam circulation boiler. (12)
(b) What are the different mountings fitted on a water tube boiler? (8)

OR

- IV. Write short notes on:
(i) Improved high lift safety valve. (7)
(ii) Reflex type water level indicator. (7)
(iii) Super heaters used in scotch boilers. (6)

- V. Write short notes on:
(i) Process of raising steam from cold on a scotch boiler. (7)
(ii) Hydraulic test done for a boiler. (6)
(iii) Steam blast jet atomizer. (7)

OR

- VI. Write short notes on:
(i) Refractory work in boilers. (7)
(ii) General maintenance carried out for fire tube and water tube type boilers. (7)
(iii) Blowing down of boiler. (6)

- VII. (a) Enumerate the advantages and disadvantages of steam turbine compared to reciprocating steam engine. (8)
(b) Sketch and describe a steam turbine rotor. (12)

OR

- VIII. (a) Draw a neat sketch of a labyrinth gland seal used in steam turbine. What is the significance and function of this seal while turbine is in operation? (14)
(b) Describe the operating principle of a reaction turbine. (6)

- IX. Sketch and describe briefly the construction and working of a regenerative type condenser used in steam turbine system. (20)

OR

- X. Write notes on:
(i) Sliding foot in steam turbine. (5)
(ii) Turbine vibration. (5)
(iii) Turbine rotor balancing (5)
(iv) Shrouding of turbine blades (5)
