

--	--	--	--	--	--	--	--

***B.Tech. Degree V Semester Regular Examination in  
Marine Engineering December 2021***

**19-208-0502 MARINE BOILER AND STEAM ENGINEERING  
(2019 Scheme)**

Time: 3 Hours

Maximum Marks: 60

(5 × 15 = 75)

- I. (a) Explain the Cochran single pass composite boiler with a neat sketch. (10)  
(b) What are the different mountings fitted on the boiler and their use? (5)
- OR**
- II. (a) Explain with a neat sketch Double evaporation boiler. (9)  
(b) Write short notes on: (6)  
(i) Tubular type gauge glass  
(ii) Main steam stop valve
- III. Sketch and describe a full bore safety valve and its advantages. (15)
- OR**
- IV. (a) Sketch and explain pressure jet type of burners used in boiler and their disadvantages. (10)  
(b) What are the different types of refractory used in a boiler and why are they used? (5)
- V. Write short notes on any three: (3×5=15)  
(i) Tangential type water walls with sketch.  
(ii) Horizontal type air heater.  
(iii) Different methods used to control the superheat temperature.  
(iv) The various alarms and trips of boiler.
- OR**
- VI. (a) Describe with a sketch the process by which a residual fuel is burnt in a boiler furnace. (10)  
(b) What is meant by suspended flame? (5)
- VII. (a) Describe the various kinds of steam condensers used in steam plant. (10)  
How the leakages are detected and what are the causes of loss of vacuum?  
(b) Explain the procedure to put the turbine plant for warming up. (5)
- OR**
- VIII. (a) What are the advantages of steam turbines over reciprocating engine? (5)  
(b) Describe the main parts of a steam turbine with a simple sketch. Explain the working of Impulse and reaction turbines with pressure and velocity diagram. (10)

(P.T.O.)

BT MRE-V(R)-12.21-1057

- IX. (a) Draw a neat sketch of a Labyrinth gland seal used in steam turbine. What is the significance and function of this seal during turbine operation? (10)
- (b) What are the materials used for making the various components like blades, rotors, casings, sealing glands, gears of a steam turbine and explain their justification? (5)

OR

- X. Write short notes on:
  - (i) Different type of turbine blades and methods of fixing them on the rotor of a turbine. (8)
  - (ii) Lay out of modern steam plant with all the auxiliaries and its importance. (7)

\*\*\*