

B. TECH.
THEORY EXAMINATION (SEM-VIII) 2016-17
POWER PLANT ENGINEERING

Time : 3 Hours

Max. Marks : 100

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. Attempt all the following questions:

10 x 2 = 20

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| <p>(a) Define boiler efficiency.</p> <p>(b) Enumerate major source of energy.</p> <p>(c) Write a short note on economiser.</p> <p>(d) Define load factor.</p> <p>(e) Define Demand factor.</p> <p>(f) Define volumetric efficiency</p> | <p>(g) Define biogas.</p> <p>(h) Write the function of baffles..</p> <p>(i) Define moderator.</p> <p>(j) What is the difference between boiler mountings and boiler accessories?</p> |
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SECTION – B

2. Attempt any five of the following questions:

5 x 10 = 50

- (a) Draw a neat line diagram of a diesel power plant showing all the systems.
- (b) Explain with the help of a neat diagram the arrangement of the Fluidised Bed combustion system.
- (c) Explain the following Lubrication system in a diesel engine:-
- (i) Wet pump Lubrication system
 - (ii) Dry pump Lubrication system
- (d) Describe with the help of neat sketch the construction and working of Pressurized water Reactor.
- (e) What do you understand by acid rain? What are the reasons for this? How they are controlled.
- (f) What is the significance of load curve? What is a load duration curve?
- (g) What is generator? How it is cooled?
- (h) During a trial on an oil fired smoke tube boiler for one hour, following data were recorded:

Steam pressure = 15 bar, Amount of water evaporated = 5400 kg, condition of steam = 0.92, amount of fuel burnt = 540 kg, calorific value of fuel used = 42000 KJ/kg, temperature of steam leaving the superheater = 250°C, Temperature of feed water = 50°C.

Determine the equivalent evaporation from and at 100°C with and without super heater, boiler efficiency and the percentage of heat utilized in the superheater.

SECTION – C

Attempt any two of the following questions:

2 x 15 = 30

3. A gas turbine has a pressure ratio of 6 and maximum cycle temperature of 800°C. The isentropic efficiencies of compressor and turbine are 0.82 and 0.85 respectively. Calculate the power output and thermal efficiency when the air enters compressor at 15°C and 1 bar.
4. Explain the factor which shall be considered while selecting a site for Hydro- electric power plant Enumerate Essential elements of a Hydro Electric power plant.
5. What do you mean by ‘Supercritical Boilers’ and ‘Super charged Boiler’?