Printed Pages : 1 **Roll No.** | | | | | | | | | | | **NME801**

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**

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

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 shell 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’?