

IV B.Tech II Semester Supplementary Examinations, July/August - 2017

POWER PLANT ENGINEERING
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) What do you understand by non conventional sources of power generation? What is the scope of these sources in India? [8]
b) Draw a neat line diagram of inplant coal handling and discuss about the functioning of equipment used at different stages. [7]
- 2 a) Discuss about overfeed and underfeed supply of coal. [7]
b) With a neat sketch explain the working of hyperbolic cooling tower and discuss its advantages and disadvantages. [8]
- 3 a) Why supercharging is necessary in diesel plant? What are the methods used for supercharging the diesel engine? What are the advantages of supercharging as fuel consumption and overall efficiency of the plant are concerned? [7]
b) What do you understand by a closed cycle gas turbine plant? List out its advantages over open cycle plant. What difficulties are encountered in the development of closed cycle gas turbine plant? [8]
- 4 a) What are the factors to be considered in selecting site for hydro electric power plant? [7]
b) What is hydrograph? Explain its importance in the design of storage type hydro electric power plant. [8]
- 5 a) With a neat sketch explain the working of Boiling water reactor. Write its advantages and disadvantages. [7]
b) What are the different types of nuclear wastes? Which of them are more dangerous and why? [8]
- 6 a) What are the advantages of combinedly operating the power plants in electric power system. [7]
b) Explain how analysis of load sharing between base load and peak load stations done. [8]
- 7 a) What is photocell? Draw the line diagram of smoke meter and explain its working. [7]
b) Discuss the importance of measurement and instrumentation in power plant. [8]
- 8 a) The peak load on a power station is 30 MW. The loads having maximum demands of 25 MW, 10MW, 5 MW and 7 MW are connected to the power station. The capacity of the power station is 40MW and annual load factor is 50 % find. (i) Average load on the power station (ii) Energy supplied per year. (iii) Demand factor. (iv) Diversity factor. [7]
b) What do understand by acid rains? What are the reasons of this? How are they controlled? [8]