

Code: ME8T1

**IV B.Tech - II Semester – Regular / Supplementary Examinations
March 2019**

**POWER PLANT ENGINEERING
(MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) List the factors to be considered while selecting the site for a steam power station.
- b) What are the advantages and disadvantages of pulverized fuel burning (coal firing) system?
- c) Explain super charging in brief.
- d) Draw the layout of a gas turbine plant indicating all the components (devices).
- e) What factors are to be considered while selecting a site for hydro-electric power plant?
- f) List the properties that the control rods should possess and name various coolants used in nuclear power plants.
- g) Explain in brief, the theme of ‘coordination of different types of Power plants’.
- h) What are the commonly used instruments in a power plant?
- i) Define the terms-connected load, average load, maximum demand and load factor.

- j) What is the physical significance of load curves?
- k) Suggest the ways to reduce power generation cost.

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

- 2. a) Draw the general layout of ash handling and dust collection system and explain any one ash handling system (equipment) with a sketch. 8 M
- b) Classify stokers and with a sketch explain the working of a spreader stoker. 8 M
- 3. a) List various types of IC engines and explain the Construction and working of any one IC engine with a sketch. 8 M
- b) With a sketch, explain the working principle of a Closed cycle gas turbine. 8 M
- 4. a) Classify Hydro Electric Power Plants in detail and explain the working of pumped storage plants with a neat sketch. 8 M
- b) Classify Nuclear reactors and explain the working of Pressurized Water Reactor (PWR) with a neat sketch. 8 M

5. a) Explain in detail, the load division between power stations.

8 M

b) Explain the measurement of CO_2 and O_2 in steam power plant.

8 M

6. a) Explain the procedure to fix up the tariff (cost per kWh) for electrical energy?

8 M

b) Explain in detail, the impact of effluents from power plants on the environment.

8 M