PVP 14

Code: ME8T1

IV B.Tech - II Semester – Regular/Supplementary Examinations – May 2022

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 different grades of coal.
b) What are the advantages of artificial draught over natural draught?
c) Compare steam power plant with gas turbine plant.
d) Enumerate advantages of super charging.
e) What are the functional requirements of spillways?
f) Differentiate between fission and fusion.
g) What is chain reaction?
h) List advantages of combined working of power plants.
i) What are the requirements of base load power plant?
j) What is utilization factor and plant capacity factor?
k) What is the reason of using lean A:F ratios in gas turbines and what is the range of it?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Describe the in plant coal handling with a neat diagram. 8 M

   b) Explain the working of single retort stoker with a neat sketch. 8 M

3. a) Draw and explain the layout of modern diesel power plant showing the following systems.
   i) Fuel supply system
   ii) Lubrication system 8 M

   b) Explain the method used for super charging of the engine. 8 M

4. a) What is a spillway? Why are spillways required? What are the different types of spillways? 8 M

   b) Enumerate and explain the essential components of a nuclear reactor. 8 M

5. a) Explain the working principle of hydroelectric and gas turbine station. 8 M

   b) With a neat sketch explain the working of photo cell type smoke meter. 8 M

6. a) Explain how the NOx emissions can be reduced in the flue gases. 8 M

b) Discuss briefly on criteria for optimum loading of power plants. 8 M