Code No: **R1641034** **R16** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, July/Aug - 2021

POWER PLANT ENGINEERING

(Mechanical Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What is the necessity of feedwater treatment? [3]
   b) Write the advantages of super charging. [2]
   c) What is a spillway? Name the types of spillways? [3]
   d) Explain the mechanism of a moderator. [2]
   e) What is a peak load power plant? [2]
   f) Define diversity factor. [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the working of belt conveyor with their relative merits and demerits. [7]
   b) With a neat sketch explain the working of any one type of dust collector. [7]

3. a) Explain with a relevant diagram working of fuel supply system. [7]
   b) Explain the working of open cycle gas turbine plant? Write its advantages. [7]

4. a) What is a mass curve and explain how storage capacity is determined from it? [7]
   b) Draw the typical layout and explain the working of hydro electric power plant. [7]

5. a) Explain with relevant sketch conversion of fertile material into fissionable material. [7]
   b) What are the different methods available for disposal of nuclear wastes, explain them briefly. [7]

6. a) Explain with relevant sketches how hydro electric plant can be coupled with thermal power plants. [7]
   b) Explain the instrumentation used for smoke and dust measurement in a power plant. [7]

7. a) The yearly duration curve of a certain plant can be considered as a straight line from 120MW to 20MW. Power is supplied with one generating unit of 80 MW capacity and two units of 40MW capacity. Calculate (i) Installed capacity (ii) Load factor (iii) Plant factor (iv) Maximum demand. [7]
   b) What are the sources of water pollution and methods to control it? [7]