

Code No: RT42033D

R13

Set No. 1

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

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 THREE questions from Part-B

PART-A (22 Marks)

1. a) What are the advantages of artificial draught over natural draught [4]
- b) What is the reason of using lean A:F ratios in gas turbines and what is the range of it? [4]
- c) What is meant by unit hydrograph [3]
- d) What is chain reaction? [3]
- e) What is the importance of measurement and instrumentation in power plant [4]
- f) What is the importance of load factor [4]

PART-B (3x16 = 48 Marks)

2. a) Describe the inplant coal handling with a neat diagram [8]
- b) Explain the working of single retort stoker with neat sketch [8]
3. a) Why the starting of diesel plant is more difficult? Explain the method used for starting diesel engine? [8]
- b) Explain the method used for super charging the engine? [8]
4. a) Explain the factors affecting the run-off in hydrological cycle [8]
- b) Explain the working of pump storage with neat sketch [8]
5. a) Enumerate and explain the essential components of a nuclear reactor [8]
- b) What factors to be considered while selecting materials for the various reactor components [8]
6. a) Explain the working of pump storage plant in coordination with nuclear power plant [8]
- b) Explain the procedures for the measurement of oxygen. [8]
7. a) Explain how the NO_x emissions can be reduced in the flue gases [8]
- b) A power station has a maximum demand of 15 MW, a load factor of 0.7, a plant capacity factor of 0.525 and a plant use factor of 0.85. Find (i) The daily energy produced (ii) The reserve capacity of the plant (iii) The maximum energy that could be produced daily if the plant operating schedule is fully loaded when in operation [8]