

Code No: R42039

R10**Set No. 1****IV B.Tech II Semester Supplementary Examinations, April - 2018****POWER PLANT ENGINEERING****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Explain in detail sources of energy in power industry. [8]
b) With a neat line diagram, discuss the steam power plant layout. [7]
- 2 a) Elaborate the need of combustion and dust collection system in steam power plants. [8]
b) Why cooling towers used in steam power plant? Compare forced draught cooling tower to induced draught cooling tower in detail. [7]
- 3 a) Draw and explain the layout of a Combined Cycle Power Plant. [8]
b) Explain diesel engine air starting system briefly. [7]
- 4 a) Explain with neat sketches chute set spillway and siphon spillway. [8]
b) Sketch the layout of hydroelectric power plant and explain the functions of each component in it. [7]
- 5 Write short notes on following: (any three)
(i) Radioactive waste disposal.
(ii) Nuclear fission and Nuclear fusion
(iii) Fast Breeder Reactor
(iv) Components of Nuclear reactor [15]
- 6 a) Explain with neat sketch the operation of solar thermal power plant. [7]
b) Draw the layout of Over head pumped storage plant in combination with steam power plant and explain its major components. [8]
- 7 a) Draw the electric line diagram to measure CO₂ in the flue gases and explain the working. [9]
b) Explain how purity of water is measured. [6]
- 8 a) The peak load on a 50 MW power station is 39 MW. It supplies power through 07 2 four transformers whose connected loads are 17, 12, 9 and 10 MW. The maximum demands on these transformers are 15, 10, 8, and 9 MW respectively. if the annual load factor is 50% and plant is operating for 65% of the period in a year, find out the following: (i) Average load on the station (ii) Energy supplied per year (iii) Demand factor (iv) Diversity factor (v) Power Station use load. [8]
b) Explain effect of different pollutants on human health by thermal power plants. [7]