

Total No. of Questions : 6]

P78

SEAT No. :

[Total No. of Pages : 2

BE/Insem./APR-117

B.E. (Mechanical)

402047 : POWER PLANT ENGINEERING

(2012 Course) (Semester - II)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q1 or 2, Q3 or 4, Q5 or 6.
- 2) Draw neat diagrams wherever necessary.
- 3) Use of scientific calculator is allowed.
- 4) Use of steam Table and Mollier Chart is allowed.
- 5) Assume suitable data where ever necessary.
- 6) Figures to the right indicate full marks.

Q1) a) Discuss the present scenario of power generation in India. [4]

b) A Power Plant supplies the load having maximum demands of 40 MW, 50 MW and 30MW respectively. The load factor of the plant on the basis of annual load curve is 60% and diversity factor of the load is 1.2. Determine : [6]

- i) The Maximum load on the power plant.
- ii) The capacity of the power plant required to take the load, and
- iii) Annual energy supplied by the power plant.

OR

Q2) a) The cost of a small preheater is Rs. 12000 and its expected life is 16 years. The net annual installment to recover the cost of equipment is Rs. 425. The interest is 5%. Using sinking fund method find the salvage value of the preheater after 16 years of service. [6]

b) Elaborate the different parameters considered for calculating the cost of electric energy. [4]

P.T.O.

Q3) a) The steam at 90 bar and 480° C is supplied to steam turbine. The steam is reheated to its original temperature passing the steam through the reheater at 12 bars. The expansion after the reheating takes place to condenser pressure of 0.07 bars. Find the efficiency of reheat cycle and work output if the flow of steam is 1kg/sec. Neglect the pressure loss in the system and assume the expansion through the turbine is isentropic. Do not neglect pump work. [6]

b) Enlist the sources of air and effects of air leakage in the condenser on the performance of the condenser. [4]

OR

Q4) a) With the help of neat sketch explain any one high pressure boiler. [5]

b) With the help of neat sketch explain cogeneration power plant. [5]

Q5) a) Write in detail Nuclear Waste Disposal. [6]

b) Enlist the Advantages and Disadvantages of Hydro Electric Power Plant (HEPP). [4]

OR

Q6) a) With the help of neat sketch explain Boiling Water Nuclear Reactor. [5]

b) Explain in detail the parameters considered for selection of site for Hydro Electric Power Plant (HEPP). [5]



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