

# School of Electrical Electronics and Communication Engineering

Electrical Engineering  
ETE - Jun 2023

Time : 3 Hours

Marks : 100

## Sem IV - G2UB404T - Power Plant Engineering

*Your answer should be specific to the question asked*

*Draw neat labeled diagrams wherever necessary*

1. Describe working of tidal power plants. K2 CO2 (5)
2. Write classification of condensers with proper diagrams. K1 CO1 (5)
3. Write the types of Nuclear radiations. K2 CO3 (5)
4. Explain diversity factor, demand and load factor. K3 CO3 (10)
5. Describe various elements of Hydroelectric Power Plant with proper diagram. K2 CO1 (10)
6. Describe the function of Surge tank in hydroelectric power plant? Explain with neat sketch. K3 CO2 (10)
7. Explain the essential components of the diesel power plant with neat diagram. K4 CO1 (10)

### OR

- A steam power station has an installed capacity of 120 MW and a maximum demand of 100 MW. The coal consumption is 0.4 kg per kWh and cost of coal is Rs. 80 per tonne. The annual expenses on salary bill of staff and other overhead charges excluding cost of coal are Rs.  $50 \times 10^5$ . The power station works at a load factor of 0.5 and the capital cost of the power station is Rs.  $4 \times 10^5$ . If the rate of interest and depreciation is 10% determine the cost of generating per kWh. K4 CO2 (10)
8. Two lamps are to be compared: (a) Cost of first lamp is Re. 1 and it takes 100 watts. (b) Cost of second lamp is Rs. 4 and it takes 60 watts. Both lamps are of equal candlepower and each has a useful life of 100 hours. Which lamp will prove economical if the energy is charged at Rs. 70 per kW of maximum demand per year plus 5 paise per kWh? At what load factor both the lamps will be equally advantageous? K4 CO1 (15)
  9. Illustrate the various types of fast breeders. K5 CO2 (15)
  10. Write the comparison of capital and operating cost for various power plants. K5 CO3 (15)

### OR

- Construction and working principle of Heavy Water Cooled Reactor (HWR) (or) CANDU Type Reactor (CANDU – Canadium, Deutrium, Uranium), with proper diagrams. K5 CO2 (15)