Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Seventh Semester – Regular) Examinations, November – 2024
21BELPC47001 /21BEEPC47001 – Power Station Engineering and Economy
(EE & EEE)

Time: 3 hrs   Maximum: 70 Marks

(The figures in the right-hand margin indicate marks)

PART – A   **(2 x 5 = 10 Marks)**

Q.1. Answer *ALL* questions

		CO #	Blooms Level
a.	Define "load factor" in the context of electrical power consumption.	CO1	K2
b.	Explain about Nuclear Fusion.	CO2	K2
c.	Can you explain the difference between a run-of-river hydro power plant and a reservoir-based hydro power plant?	CO3	K1
d.	What is the function of Ash handling plant?	CO4	K1
e.	Explain the main function of Electrostatic Precipitator.	CO4	K2

PART – B   **(15 x 4 = 60 Marks)**

Answer *All* the questions

		Marks	CO #	Blooms Level
2. a.	Explain about straight line method for evaluating deprecation cost.	7	CO1	K2
b.	A generating station has a maximum demand of 35MW, a load factor of 70%, a plant capacity factor of 60% and a plant use factor of 82%. Find (i) the reserve capacity of the plant (ii) the daily energy produced and (iii) maximum energy that could be produced daily if the plant while running as per schedule, were fully loaded.	8	CO1	K3
	(OR)			
c.	The maximum demand on a power station is 100 MW. If the annual load factor is 40%, calculate the total energy generated in a year.	7	CO1	K2
d.	Write short notes on i) Diversity factor ii) Load Duration curve	8	CO1	K1
3.a.	What are the main functional differences between PWR and BWR?	7	CO2	K1
b.	A transformer costing Rs. 90,000 has a useful life of 20 years. Determine the annual depreciation charge using straight line method. Assume the salvage value of the equipment to be Rs.10,000.	8	CO2	K2
	(OR)			
c.	Explain the Economics of power generation in terms of generating electricity	7	CO2	K2
d.	Explain about PWR with neat diagram.	8	CO2	K2
4.a.	What is Hydrology and explain about hydrograph	7	CO3	K1
b.	A hydro-electric generating station is supplied from a reservoir of capacity 5×10^6 cubic meters at a head of 200 meters. Find the total energy available in kWh if the overall efficiency is 75%.	8	CO3	K3
	(OR)			
c.	Find the specific speed of a turbine of 10MW capacity working under a head of 500m and having the normal working speed of 300 RPM.	7	CO3	K2
d.	What are the factors to be considered in selecting the site of a hydro-electric	8	CO3	K1

power plant?

5.a.	Draw the Schematic diagram of a Thermal power station and explain about the steam circuit.	8	CO4	K1
b.	Explain the advantages and disadvantages of Thermal power plants	7	CO4	K2

(OR)

c.	What are the differences between Jet Condensers and Surface Condensers?	5	CO4	K1
d.	Explain about the Electrostatic precipitator with neat diagram	10	CO4	K2

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