BEE405A

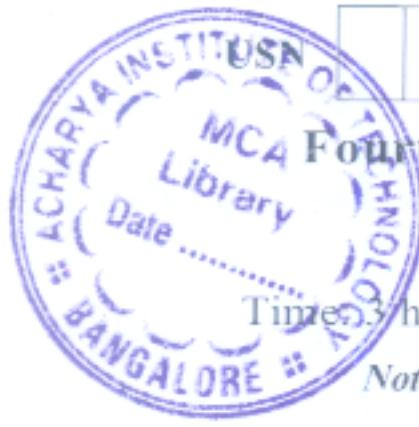**Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025**

Electrical Power Generation and Economics

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the factors to be considered for the selection of site for hydro electric power plant.	06	L2	CO1
	b.	Explain the classification of hydro power plants.	06	L2	CO1
	c.	With a neat schematic diagram, explain the essential elements of hydroelectric power plant.	08	L2	CO1
		OR			
Q.2	a.	What are differences between Impulse turbine and Reaction turbine?	06	L2	CO1
	b.	Discuss the utility of hydrograph, flow duration curve and mass curve for the hydro power plant.	06	L2	CO1
	c.	Explain the governing mechanism of hydraulic Impulse turbine and reaction turbine with neat sketches.	08	L2	CO1
		Module – 2			
Q.3	a.	Explain the function of air preheater, super heater and economizer in thermal plant.	06	L2	CO2
	b.	What are the advantages and disadvantages of steam power plant?	06	L1	CO2
	c.	With a neat sketch, explain fluidized bed combustion.	08	L2	CO2
		OR			
Q.4	a.	Explain with a neat sketch the closed cycle gas turbine power plants.	06	L2	CO2
	b.	Discuss the application of diesel power plant.	06	L2	CO2
	c.	Discuss the following in diesel power plant : i) Fuel Supply System ii) Air Intake System iii) Lubricating System iv) Engine Starting System	08	L2	CO2
		Module – 3			
Q.5	a.	Explain the advantages and disadvantages of Nuclear Power Plant.	06	L2	CO3
	b.	Give the various classification of nuclear reactor and explain any one.	06	L1	CO3
	c.	Draw the schematic diagram of a Nuclear Power Station and discuss its operation.	08	L2	CO3

		OR			
Q.6	a.	Discuss the disposal of nuclear waste in nuclear power station.	06	L2	CO3
	b.	Explain the following with respect to nuclear power plant: (i) Moderator (ii) Control rods (iii) Reflector	06	L2	CO3
	c.	Discuss the factor to be considered for selecting site for nuclear power plant.	08	L2	CO3
		Module – 4			
Q.7	a.	What is Substation? Discuss the main components of substation.	08	L2	CO4
	b.	Discuss the classification of substation.	06	L2	CO4
	c.	Discuss the factors to be considered for site selection of substation.	06	L2	CO4
		OR			
Q.8	a.	With a neat sketch, explain the grounding system through earthing transformer.	06	L2	CO4
	b.	A 230 V, 3ϕ, 50 Hz, 200 Km transmission has a capacitance to earth of 0.01 mF/Km per phase. Calculate the inductance and KVA rating of Peterson coil used for earthing the above system.	06	L3	CO4
	c.	Explain double bus without sectionalisation with neat diagram and advantages.	08	L2	CO4
		Module – 5			
Q.9	a.	Explain the following terms as applied to power station: i) Average Load ii) Maximum Load iii) Diversity Factor iv) Plant Use Factor	08	L2	CO5
	b.	Explain Two Part tariff and Power Factor tariff.	06	L2	CO5
	c.	Discuss the various methods of Power Factor Improvement.	06	L2	CO5
		OR			
Q.10	a.	Explain any two methods of determination of depreciation.	06	L2	CO5
	b.	Explain the factors affecting tariff.	06	L2	CO5
	c.	A generating station has 3×50 MW units. The station output is 876×10^6 KWH per annum. The maximum demand is 120 MW. Calculate i) Average Load on Station ii) Annual Load Factor iii) Annual Capacity Factor iv) Utilization Factor	08	L3	CO5

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