U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 19EE7OE2EC **Max Marks: 100**
Course: Electrical Power and Energy Conservation

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Explain the conventional and non conventional electrical energy sources in India. Explain the role of private sector in India.	CO1	PO1	**04** **06**
	b)	Explain electrical energy demand and power crisis in India.	CO1	PO1	**10**
		UNIT - II			
2	a)	Define the following terms: i) Maximum demand ii) Demand factor iii) Average load iv) Load factor v) Diversity factor	CO1	PO1	**10**
	b)	Briefly explain the types of tariff.	CO2	PO1	**05**
	c)	A Power station has said to have plant utilization factor = 0.47 and plant capacity factor = 0.4. How many hours did it operate during the year.	CO2	PO2	**05**
		OR			
3	a)	Define tariff. Mention the objectives of tariff and requirement of good tariff.	CO2	PO1	**10**
	b)	A station is suppling 5 localities of a town with peak loads of 8MW, 4MW, 6MW, 10MW and 12MW with a load factor of 60% and a diversity factor of 1.25. Determine the maximum demand on the station and the annual average energy consumption.	CO2	PO3	**05**
	c)	What are the various typical energy consumers sectors? Draw the typical load curve of various energy sectors.	CO2	PO2	**05**
		UNIT - III			
4	a)	Explain the energy conservation planning as a part of energy systems.	CO3	PO2	**10**
	b)	Explain the energy conservation in house hold and commercial sector.	CO3	PO2	**10**

			UNIT - IV			
	5	a)	Briefly explain the energy audit carried out for illumination system.	*CO3*	*PO2*	**07**
		b)	Analyze the power consumption and savings for the following: **Original Equipment:** i)Total number of T12Tube lights with 60w is: 11 no. and 8 hours daily usage. ii) Desktop computer=250w, 8.5 hours daily usage iii) Entertainment: Television= 180w, 6 hours daily usage. **By using Energy Efficient Equipment** i) Total number of T5Tube lights with 20w is: 11 no. and 8 hours daily usage. ii) Desktop computer by laptop =65w, 8.5 hours daily usage. iii) Energy efficient Plasma TV, 126w, 6 hours daily usage.	*CO3*	*PO3*	**06**
		c)	As an energy manager what are the duties that you would take up while conducting energy audit.	*CO3*	*PO2*	**07**
			OR			
	6	a)	Define energy audit. Explain the energy flow diagram as applied to energy audit.	*CO3*	*PO2*	**07**
		b)	Briefly explain the various instruments used for energy audit for i) Electrical measurement ii) Chemical measurement iii) Humidity measurement.	*CO3*	*PO2*	**06**
		c)	Briefly explain the energy audit carried out for HVAV system.	*CO3*	*PO2*	**07**
			UNIT - V			
	7	a)	With respect to DSM explain the applications of load control.	*CO4*	*PO2*	**08**
		b)	Define DSM. Explain the scope of DSM.	*CO4*	*PO2*	**04**
		c)	Explain the tariff options od DSM.	*CO4*	*PO2*	**08**

****