U.S.N.										

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 23CY7OEECM **Max Marks: 100**

Course: ENERGY CRISIS MANAGEMENT

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)	Define energy management. Outline the three steps in the energy crisis management.	*CO1*	*PO1*	**8**
	b)	List the objectives and benefits of energy management programme.	*CO2*	*PO7*	**6**
	c)	Distinguish primary and secondary sources of energy with suitable examples.	*CO3*	*PO4*	**6**
		OR			
2	a)	Summarize the following. (i) Conservation of energy (ii) Laws of energy.	*CO1*	*PO1*	**8**
	b)	Compare commercial and non-commercial energy sources with suitable examples.	*CO2*	*PO7*	**6**
	c)	Justify (i) A machine can never be 100 per cent efficient. (ii) Energy efficiency is an integral part of energy conservation promotional policies.	*CO3*	*PO4*	**6**
		UNIT - II			
3	a)	Elaborate on the components and working of windmill with diagram.	*CO2*	*PO7*	**8**
	b)	Summarize the construction and working of Pyranometer with labelled diagram.	*CO3*	*PO4*	**6**
	c)	Outline the construction and working of photovoltaic cell with labelled diagram. List the advantages of solar energy.	*CO1*	*PO1*	**6**
		OR			
4	a)	Relate mathematically and highlight the significance of the factors affecting wind power system.	*CO2*	*PO7*	**8**
	b)	Compare dry steam and wet steam system of geothermal source with a neat block diagram.	*CO3*	*PO4*	**6**
	c)	Justify (i)Horizontal axis wind turbine is the most successful type of wind turbine. (ii)Flat plate solar collectors are always tilted	*CO1*	*PO1*	**6**

			UNIT - III			
	5	a)	Classify thermal energy storage materials with suitable examples.	*CO1*	*PO1*	**8**
		b)	Analyze the causes and effects of Infinite Conductivity in a superconductor.	*CO2*	*PO7*	**6**
		c)	Differentiate battery and a supercapacitor.	*CO1*	*PO1*	**6**
			OR			
	6	a)	Classify Super capacitors based on the charge storage mechanism	*CO1*	*PO1*	**8**
		b)	List the advantages and limitations of magnetic energy storage.	*CO2*	*PO7*	**6**
		c)	Justify (i)Diamagnetism is different from Meissner effect. (ii) Superconductors are promising energy storage device.	*CO1*	*PO1*	**6**
			UNIT - IV			
	7	a)	Define microbial fuel cell. Explain the construction and working of microbial fuel cell with a neat labelled diagram.	*CO3*	*PO4*	**8**
		b)	Classify Biogas plants with a neat diagram	*CO2*	*PO7*	**6**
		c)	Explain the three stages of Briquetting process.	*CO1*	*PO1*	**6**
			OR			
	8	a)	Summarize the applications, advantages and limitations of microbial fuel cells.	*CO3*	*PO4*	**8**
		b)	Outline the working of fluidized-bed gasifier with a neat labelled diagram.	*CO2*	*PO7*	**6**
		c)	Justify (i)Biogas is an economically advantageous option for small-scale energy (ii) Municipal solid waste conversion to electricity will reduce landfills.	*CO1*	*PO1*	**6**
			UNIT - V			
	9	a)	Classify energy audit instruments giving suitable examples.	*CO3*	*PO4*	**8**
		b)	List the responsibilities of energy manager in an organization.	*CO2*	*PO7*	**6**
		c)	Define (a) Energy audit (b) Energy system (c) Energy forecasting	*CO3*	*PO4*	**6**
			OR			
	10	a)	Analyze any four outcomes of energy audit.	*CO3*	*PO4*	**8**
		b)	Differentiate between energy index and cost index.	*CO2*	*PO7*	**6**
		c)	Justify (i)Energy audit is particularly important for energy-intensive operations. (ii)Energy audit for organizations must comply with environ mental regulations.	*CO3*	*PO4*	**6**

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