U.S.N.										

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

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: I / II**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 22EE1ESRES / 22EE2ESRES **Max Marks: 100**
Course: Renewable Energy Sources

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

		UNIT - I	*CO*	*PO*	Marks
1	a)	Explain renewable and non-renewable energy sources with their merits and demerits.	*CO1*	*PO7*	**08**
	b)	With a neat block diagram, explain the process of converting geothermal energy into electrical energy.	*CO3*	*PO2*	**08**
	c)	List the advantages and disadvantages of wind energy.	*CO1*	*PO7*	**04**
		UNIT - II			
2	a)	With neat diagram, explain the construction and working of parabolic collectors.	*CO2*	*PO2*	**08**
	b)	With an aid of neat sketch, explain the working of pyranometer.	*CO2*	*PO2*	**08**
	c)	Mention any four applications of photovoltaic system (any four).	*CO2*	*PO2*	**04**
		OR			
3	a)	With neat sketch, define the following: (i) Solar azimuth angle (ii) Zenith angle (iii) Altitude angle (iv) Surface Azimuth angle	*CO2*	*PO2*	**08**
	b)	With a neat sketch, explain beam and diffused radiation, scattering and absorption.	*CO2*	*PO2*	**08**
	c)	Mention the advantages and disadvantages of photovoltaic system.	*CO2*	*PO2*	**04**
		UNIT - III			
4	a)	With a neat sketch explain darrieus type of vertical axis wind energy conversion systems.	*CO3*	*PO1*	**08**

		b)	Explain various factors that are considered while selecting a site for installing wind energy systems.	*CO3*	*PO1*	**08**
		c)	Derive the expression for power available in the wind.	*CO3*	*PO1*	**04**
			OR			
	5	a)	What are the basic components of wind energy conversion system.	*CO3*	*PO1*	**08**
		b)	With a neat sketch, explain the working of single blade wind energy system.	*CO3*	*PO1*	**08**
		c)	List the environmental aspects associated with wind power.	*CO3*	*PO1*	**04**
			UNIT - IV			
	6	a)	Explain principle and operation of single basin type tidal system storage with neat labelled diagram.	*CO3*	*PO1*	**08**
		b)	With a neat labelled diagram, explain the working of closed OTEC cycle.	*CO3*	*PO1*	**08**
		c)	List the advantages and disadvantages of OTEC power.	*CO3*	*PO1*	**04**
			UNIT - V			
	7	a)	Discuss the process of photosynthesis with relevant equations and list any three biomass resources.	*CO3*	*PO1*	**08**
		b)	With a neat diagram, explain downdraft biomass gasification.	*CO3*	*PO1*	**08**
		c)	Mention the merits and demerits of Fuel cells.	*CO2*	*PO1*	**04**

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