U.S.N.										

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

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 22EE6OE1RE **Max Marks: 100**
Course: Renewable Energy Resources

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.

			CO	PO	Marks
		UNIT - I			
1	a)	Efficient use of renewable energy requires correct application of certain principles. Briefly explain those scientific principles required.	*CO1*	*PO2*	**10**
	b)	With the help of relevant diagrams, explain the different forms of energy sources giving comparison of their different features.	*CO1*	*PO2*	**10**
		UNIT - II			
2	a)	Explain the following: i) Latitude Angle ii) Azimuth Angle iii)Declination Angle	*CO2*	*PO1*	**06**
	b)	Explain with neat diagrams the variation of declination angle and its effect on earth's surface.	*CO2*	*PO1*	**08**
	c)	Find the time at which sunrise (both geometric and conventional) will occur in Bangalore on (latitude 12.97◦N) on Aug 19th.	*CO2*	*PO1*	**06**
		OR			
3	a)	List the devices used for the measuring solar radiation. Explain with neat diagrams the working of equipments used for total solar radiation (ANY ONE Type).	*CO2*	*PO1*	**12**
	b)	Find the optimum tilt angle for a south-facing photovoltaic module in Delhi (latitude 28.644°N) at solar noon on Aug 18th.	*CO2*	*PO1*	**08**
		UNIT - III			
4	a)	Explain the effect of temperature and altitude on the wind power and necessary correction to accommodate the same	*CO3*	*PO4*	**10**
	b)	Describe with a neat diagram the components of wind electric conversion system.	*CO2*	*PO1*	**10**
		UNIT - IV			
5	a)	Explain with neat diagrams the principle of harnessing of energy from ocean waves	*CO1*	*PO2*	**10**

		b)	What is ocean thermal energy conversion? What are the different methods of power conversion? What are the problems associated with this?	*CO1*	*PO2*	**10**
			OR			
	6	a)	Explain with relevant diagrams the principle of harnessing energy from the tides in the ocean?	*CO1*	*PO2*	**10**
		b)	Develop an expression for energy and power from the waves	*CO1*	*PO2*	**10**
			UNIT - V			
	7	a)	Write in brief the different resources of biomass available for energy production?	*CO1*	*PO2*	**10**
		b)	Explain different geothermal sources available for extraction of geothermal energy	*CO1*	*PO2*	**10**

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