Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Fifth Semester

Chemical Engineering

CH3007- Renewable Energy Resources

Regulations - 2021

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Which energy source was crucial during the industrial revolution?	RE	1	2
2.	What do you understand by energy resources?	RE	1	2
3.	How is solar energy produced by the Sun?	RE	2	2
4.	What are the basic components of a Solar Photovoltaic (PV) system?	RE	2	2
5.	What are the benefits of bio gas technology?	RE	3	2
6.	Write the application of geothermal energy.	RE	3	2
7.	State the various applications of wind energy.	RE	4	2
8.	Illustrate the purpose of pitch control in wind turbines.	UN	4	2
9.	List the peculiarities of ocean thermal energy conversion system.	RE	5	2
10.	Give the advantages of tidal power plant.	RE	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Compare the conventional and non-conventional sources of energy.	UN	1	5
		ii	How do renewable energy sources contribute to sustainability, environmental benefits and job creation?	UN	1	8
			Or			
	b		Discuss the energy planning issues aiming to bridge the gap between the energy demand and supply situation in India.	UN	1	13
12.	a		Classify the solar collectors? Explain any one type with the help of neat sketch.	UN	2	13
			Or			
	b	i	Explain the challenges associated with the use of solar energy, and what are the remedies and possible solutions?	UN	2	5
		ii	Explain the working principle of solar PV cells. What materials are used for PV cells?	UN	2	8
13.	a		How can a specific type of biogas digester be constructed and utilized effectively for sustainable waste management and energy production? Explain.	AP	3	13
			Or			

	b	How can geothermal energy be utilized in industrial and residential environments?	AP	3	13
14.	a	Describe the working of a wind power system with the help of a neat schematic diagram.	AP	4	13
		Or			
	b i	What factors should be considered in the site selection process for a wind energy system to optimize its efficiency and effectiveness?	AP	4	5
	ii	Illustrate the various applications of wind energy, and how can they be implemented in different sectors?	AP	4	8
15.	a	What is the basic principle of Tidal Energy Explain the Principle of working of Simple tidal Energy Conversion Plant with the help of a neat sketch.	UN	5	13
		Or			
	b	Draw and explain the following types of ocean thermal energy conversion (OTEC) systems (i) Open OTEC and (ii) Closed OTEC	UN	5	13

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16.	a	Analyze the potential of renewable energy to meet global energy demands in the 21st century. What technological advancements are necessary to overcome the limitations of renewable energy?	AN	1	15
		Or			
	b	Analyze the lifecycle greenhouse gas emissions associated with bioenergy production and consumption.	AN	3	15