

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Fifth Semester**Chemical Engineering***CH3007 – Renewable Energy Sources***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	Define renewable energy and give one example.	L1	1	2
2.	State two advantages of renewable energy over fossil fuels.	L2	1	2
3.	Describe how solar energy can be used in heating applications.	L2	2	2
4.	Illustrate one-way solar panels convert sunlight into energy.	L2	2	2
5.	What is a geothermal energy?	L2	3	2
6.	What is a biofuel?	L2	3	2
7.	What are the types of wind turbine?	L2	4	2
8.	Summarize two environmental benefits of using wind energy.	L1	4	2
9.	Recall what tidal energy is and give one example of its application.	L2	5	2
10.	Contrast ocean thermal energy with wave energy in one sentence.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Outline the major shifts in energy consumption from past to present.	L2	1	8
	ii Explain how renewable energy helps reduce environmental impacts.	L2	1	8
	Or			
	b i Describe the concept of energy quality and why it is important in renewable energy discussions.	L2	1	8
	ii Identify two limitations of renewable energy sources.	L2	1	8
12.	a i Explain the basic principles of solar photovoltaic energy generation.	L3	2	8
	ii Explain the working of a photovoltaic cell.	L3	2	8
	Or			

	b i	Explain in brief the working of a solar thermal heating system for domestic application.	L3	2	16
13.	a i	Describe the process of biogas generation using organic waste.	L2	3	10
	ii	Identify two key advantages of using biomass energy.	L2	3	6
		Or			
	b i	Explain the working of a biomass gasifier.	L3	3	8
	ii	Explain one environmental benefit of using bioenergy sources.	L3	3	8
14.	a i	Discuss how wind energy is harnessed by a wind turbine.	L2	4	8
	ii	Discuss two factors that affect the efficiency of wind turbines.	L2	4	8
		Or			
	b i	Outline the steps involved in constructing a small wind farm.	L3	4	8
	ii	Apply the concept of wind energy in one example of industrial use.	L3	4	8
15.	a i	Explain how tidal energy is generated and list one of its primary applications.	L3	5	10
	ii	Summarize the potential benefits of using tidal energy for coastal regions.	L3	5	6
		Or			
	b i	Compare tidal and ocean thermal energy in terms of energy potential.	L2	5	8
	ii	Examine the environmental challenges associated with ocean energy technology.	L2	5	8