

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fifth Semester**Mechanical Engineering***CME365 – Renewable Energy Technologies****(Common to Seventh Semester Artificial Intelligence and Data Science, Computer Science and Engineering, Electrical and Electronics Engineering & Information Technology)***Regulations – 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Classify the renewable sources of energy.	L2	1	2
2.	List the various application of renewable energies.	L2	1	2
3.	What are the factors affecting performance of solar collectors?	L1	2	2
4.	Mention the different applications of solar PV system in rural area.	L2	2	2
5.	How the wind mills are classified?	L1	3	2
6.	Mention the various environmental impact of wind energy systems.	L2	3	2
7.	List down the factors affecting anaerobic digestion.	L1	4	2
8.	How are gasifiers classified?	L1	4	2
9.	Write the advantages and disadvantages of geothermal energy resources.	L1	5	2
10.	List out the applications of OTEC.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain the following terms: Conventional and non-conventional energy.	L2	1	8
	ii Discuss in details about global primary, secondary energy reserves and consumption.	L2	1	8
	Or			
	b i Briefly Explain the renewable energy scenario in India.	L2	1	8
	ii Explain in details about the renewable energy scenario in Tamil Nadu.	L2	1	8
12.	a i What are the concentrating solar collectors? Explain with neat Sketches.	L2	2	8
	ii Enumerate the methods of measuring global solar radiation using any one type pyranometers with neat sketch.	L2	2	8
	Or			
	b i Explain the construction and working of liquid heating flat plate collectors with a neat sketch.	L2	2	8
	ii With a schematic diagram explain the structure of high temperature solar power plant.	L2	2	8

13.	a	i	Explain the construction and working principle of horizontal axis wind turbine with neat sketch.	L3	3	8
		ii	Write down the factors to be considered for selecting site to install wind mills.	L3	3	8
Or						
	b	i	Explain the construction and working principle of VAWT with neat sketch.	L3	3	8
		ii	Explain any one type of hybrid wind power plant used these days.	L3	3	8
14.	a	i	What are the biomass energy conversion processes? Explain any one of them in details.	L4	4	8
		ii	Explain with the neat sketch and working of gas turbine cogeneration plant.	L4	4	8
	Or					
	b	i	Explain the methods used for ethanol production.	L4	4	8
15.		ii	With the help of neat sketch, explain the working of continuous process biogas plant.	L4	4	8
	a	i	Briefly explain with the neat sketch of double basin type tidal power plant.	L3	5	8
		ii	Explain the principle of operation of closed cycle OTEC system with neat sketch.	L3	5	8
	Or					
	b	i	Draw the neat sketch and explain the working principle of small hydro power plant.	L3	5	8
		ii	Explain the construction and working principle of hybrid OTEC.	L3	5	8