Code No.: ME741PE	R20	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Supply) – April – 2025
RENEWABLE ENERGY SOURCES
(MECH)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	State renewable energy sources and Express the any two advantages of renewable energy sources.	[2M]
	b)	Classify the environmental impacts of energy utilization.	[2M]
	c)	What are the main advantages of flat plate solar collector?	[2M]
	d)	Define beam radiation.	[2M]
	e)	List the various components of wind energy system.	[2M]
	f)	What are the factors led to the accelerated development of wind power.	[2M]
	g)	What is meant by liquefaction?	[2M]
	h)	What is the main advantage and disadvantage of biomass energy?	[2M]
	i)	Classify the Tidal power plants.	[2M]
	j)	Write the applications of Geothermal energy.	[2M]

PART-B **(50 Marks)**

2.		Describe the importance of non-conventional energy sources in the present context with suitable example.	[10M]
		OR	
3.		Explain the prospects of non-conventional energy sources in India.	[10M]
4.		Sketch and explain the sun tracking helps in energy collection by a flat plate solar collector?	[10M]
		OR	
5.		Define the following terms: (i) Altitude angle. (ii) Incident angle. (iii) Zenith angle. (iv) Solar azimuth angle.	[10M]
6.		Briefly explain the environmental factors associated with wind energy.	[10M]
		OR	
7.		Discuss in detail the operation and control of wind turbine.	[10M]
8.	a)	Classification of biogas plants and explain any one.	[5M]
	b)	List the different parameter which affects bio gas generation.	[5M]
		OR	
9.		Examine briefly Bio-gas from plant wastes.	[10M]
10.		Illustrate Open cycle OTEC system and Closed OTEC cycle.	[10M]
		OR	
11.		Explain briefly small hydro power stations with diagram.	[10M]

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