

CBCS SCHEME

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BEE654B

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2026 Technologies of Renewable Energy Sources

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.



Module – 1		M	L	C
Q.1	a. Classify the various types of energy resources and explain briefly.	8	L2	CO1
	b. Briefly discuss the causes of energy scarcity and possible solutions to energy scarcity.	8	L2	CO1
	c. Calculate and find hour angle when it is 2h 20 min.	4	L1	CO1

OR

	a. With necessary diagram, explain layers of the Sun.	8	L2	CO1
	b. Explain the factors affecting energy resource development.	8	L2	CO1
	c. List the following factors: (i) Hour angle (ii) Zenith angle (iii) Declination angle (iv) Air mass	4	L1	CO1

Module – 2

Q.3	a. List and explain any four popular types of solar collectors.	8	L2	CO2
	b. Explain solar water heating system, solar pond power generation, solar cookers, solar dryers.	8	L2	CO2
	c. Explain with the neat diagram, Heliostat field solar collectors.	4	L2	CO2

OR

Q.4	a. With the neat diagram, explain IV characteristics of a solar cell.	8	L2	CO2
	b. Explain key elements of silicon solar cell.	8	L2	CO2
	c. Explain different application of solar cell systems.	4	L2	CO2

Module – 3

Q.5	a. Explain the hydrogen production techniques in detail.	8	L2	CO3
	b. Briefly explain the problems associated with hydrogen energy. List the advantages and disadvantages of hydrogen energy.	8	L2	CO3

	c.	Discuss the parameters to be considered while choosing a site for wind mills.	4	L1	CO3
OR					
Q.6	a.	With the neat diagram, explain dry steam based geothermal power plant.	6	L2	CO3
	b.	With the neat diagram, explain waste recovery management scheme.	8	L1	CO3
	c.	Write the advantages and disadvantages of waste recycling.	6	L1	CO3
Module – 4					
Q.7	a.	Define Gasification. Explain the various types of gassifier with the neat diagram.	8	L2	CO4
	b.	Explain the process of anaerobic digestion with neat sketch.	8	L2	CO4
	c.	Explain the types of Biogas plant.	4	L2	CO4
OR					
Q.8	a.	Discuss the composition of biogas and benefits of biogas.	8	L2	CO4
	b.	Explain : (i) Single Basin systems (ii) Two Basin systems	8	L2	CO4
	c.	List and explain the advantages and disadvantages of tidal power	4	L2	CO4
Module – 5					
Q.9	a.	Explain the devices for harnessing wave energy.	8	L2	CO5
	b.	Discuss motion in the sea waves.	4	L1	CO5
	c.	Distinguish between Land based and floating OTEC power plants.	8	L2	CO2
OR					
Q.10	a.	Explain Rankine cycle and its working.	8	L2	CO5
	b.	Discuss the principle of ocean thermal energy conversion.	4	L1	CO5
	c.	Explain the applications of OTEC in addition to produce electricity.	8	L2	CO5

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