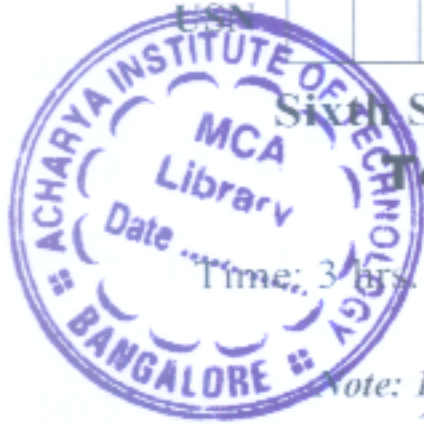




Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Technologies of Renewable Energy Sources

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.	Explain the causes of energy scarcity.	7	L2	CO1
	b.	Explain the layers of the sun with a neat sketch.	7	L2	CO1
	c.	Calculate zenith angle of the sun at Bhopal (26.75°N) at 10.30 am on March 11, 2025.	6	L2	CO1
OR					
Q.2	a.	Write a short note on the following: i) Hour Angle ii) Declination Angle	7	L2	CO1
	b.	Explain the classification of energy resources.	7	L2	CO1
	c.	Discuss the applications of solar thermal energy.	6	L2	CO1
Module – 2					
Q.3	a.	Write short on solar cooker.	6	L2	CO2
	b.	Explain with a neat sketch Heliostat electric generating plant.	8	L2	CO2
	c.	With a neat sketch, explain the IV characteristics of a solar cell.	6	L2	CO2
OR					
Q.4	a.	Discuss about photovoltaic panels with appreciate equations.	6	L2	CO2
	b.	Explain solar water heating system with a neat sketch.	8	L2	CO2
	c.	Discuss the advantages and disadvantages of concentrating collectors over flate plate collectors.	6	L2	CO2
Module – 3					
Q.5	a.	List the advantages and disadvantages of hydrogen energy.	5	L1	CO3
	b.	Explain the hydrogen production, techniques in detail.	10	L2	CO3
	c.	Discuss the benefits of waste recycling system.	5	L2	CO3

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OR				
Q.6	a.	List the factors for wind turbine site a selection.	5	L1 CO3
	b.	Explain with a neat sketch dry steam geothermal electric power plant.	10	L2 CO3
	c.	Discuss the factors affecting the selection of a biogas plant.	5	L2 CO3
Module – 4				
Q.7	a.	List the advantages and disadvantages of tidal power generation.	5	L1 CO4
	b.	With a neat diagram, explain single basin and two basin tidal power plants.	10	L2 CO4
	c.	Write short notes on characteristics of biomass feed.	5	L2 CO4
OR				
Q.8	a.	List the benefits of biogas.	5	L1 CO4
	b.	Explain with a neat sketch, floating dome type biogas plant.	10	L2 CO4
	c.	Write short note on updraft gasifier.	5	L2 CO4
Module – 5				
Q.9	a.	Enumerate the advantages and disadvantages of wave power.	5	L1 CO5
	b.	Explain the devices used for harnessing wave energy.	10	L2 CO5
	c.	Explain Rankine cycle with a sketch.	5	L2 CO5
OR				
Q.10	a.	List the applications of OTEC.	5	L1 CO5
	b.	Explain closed cycle and open cycle of ocean thermal energy.	10	L2 CO5
	c.	Write short notes on working of sea wave energy.	5	L2 CO5
