

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

BETCK105E/BETCKE105

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024

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.	Briefly explain the principles of renewable energy, energy and sustainable development, fundamental and social implication of renewable energy.	10	L2	CO1
	b.	Briefly describe biomass energy and Internet of energy.	10	L2	CO1
OR					
Q.2	a.	Briefly describe energies from ocean.	10	L2	CO1
	b.	Briefly describe geothermal energy and solar energy.	10	L2	CO1
Module – 2					
Q.3	a.	Explain solar radiation and its estimation on horizontal and inclined surfaces.	10	L2	CO2
	b.	With neat sketches, explain the working principles of Pyranometer and Pyreheliometer.	10	L2	CO2
OR					
Q.4	a.	Explain solar pond and solar distillation.	10	L2	CO2
	b.	Explain the principle of photovoltaic system with applications.	10	L2	CO2
Module – 3					
Q.5	a.	Explain with a neat block diagram, the basic components of Wind Energy Conversion System (WECS) specifying the components of a wind turbine.	10	L2	CO3
	b.	Stating advantages and disadvantages, elaborate in detail, the working principle of a horizontal axis wind turbines.	10	L2	CO3
OR					
Q.6	a.	Elaborate on photosynthesis process.	6	L2	CO3

	b.	Explain biomass conversion technologies.	8	L2	CO3
	c.	Explain with a neat sketch, downdraft garifier.	6	L2	CO3
Module – 4					
Q.7	a.	Explain with sketches, working of single and double basin tidal power plants.	10	L2	CO4
	b.	Summarize the advantages and limitation of tidal power generation.	10	L2	CO4
OR					
Q.8	a.	Explain with sketches, working principles of open and closed cycle Ocean Thermal Energy Conversion (OTEC) system.	10	L2	CO4
	b.	What are the problems associated with OTEC?	10	L2	CO4
Module – 5					
Q.9	a.	Classify fuel cells and explain the working of hydrox (H_2 , O_2) fuel cell.	10	L2	CO5
	b.	Describe in detail about hydrogen energy storage and applications.	10	L2	CO5
OR					
Q.10	a.	Explain with a sketch, electrolysis method used for hydrogen energy production.	10	L2	CO5
	b.	Discuss the problems associated with hydrogen energy.	10	L2	CO5

* * * * *