CBCS SCHEME

USN | | | | | | | | | | |

BETCK105E/BETCKE105

First Semester B.E./B.Tech. Degree Examination, June/July 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.	What are Renewable Energy Sources?	2	L2	CO1
	b.	What do you mean by sustainable development of Energy? What are its implications?	10	L2	CO1
	c.	Discuss the potential of Renewable Energy sources, with reference to India.	8	L2	CO1
		OR			
Q.2	a.	Write short notes on : i) Wave Energy ii) Oil Shale.	10	L2	CO1
	b.	What do you mean by Internet of Energy? Explain the Internet of Energy (IOE) relating the Renewable Energy Sources.	10	L2	CO1
		Module – 2			
Q.3	a.	What is Beam , Diffuse and Global radiation? Name the instruments used to measure these radiations.	4	L2	CO2
	b.	Explain the working of a Pyranometer with a neat sketch.	6	L2	CO2
	c.	Explain the construction and working of a flat plate collector.	10	L2	CO2
		OR			
Q.4	a.	What is a Solar Pond? Explain the working of a solar pond electric power plant with a neat diagram.	10	L2	CO2
	b.	What is a Solar Cell? Explain the principle of solar photovoltaic power generation.	10	L2	CO2
		Module – 3			
Q.5	a.	What are the different properties of wind?	5	L2	CO3
	b.	Explain with a neat sketch, the essential components of the wind energy convention system.	10	L2	CO3
	c.	What are the major problems associated with wind power?	5	L2	CO3
		OR			
Q.6	a.	Explain the process of Photosynthesis.	6	L2	CO3

	b.	What is the difference between Biomass and Biogas?	4	L2	CO3
	c.	Explain the process of Biogas production using downdraft gasifier.	10	L2	CO3
		Module – 4			
Q.7	a.	What is Tidal Energy? Explain the mechanics of Tidal Energy.	10	L2	CO4
	b.	Explain the working of a single basin tidal power plant, with a neat sketch.	10	L2	CO4
		OR			
Q.8	a.	Describe the working of closed cycle OTEC, with necessary diagram.	10	L2	CO4
	b.	What are the problems associated with OTEC?	6	L2	CO4
	c.	Differentiate between Tidal and Wave energy.	4	L2	CO4
		Module – 5			
Q.9	a.	What is a Fuel cell?	2	L2	CO5
	b.	Give the classification of Fuel cell based on i) Tyre of Electrolyte used ii) Operating temperature iii) Physical state of fuel used.	8	L2	CO5
	c.	Explain the principle of working of a fuel cell with reference to $H_2 - O_2$ cell.	10	L2	CO5
		OR			
Q.10	a.	List various methods used for production of hydrogen used as an Energy carrier. Explain Electrolysis method for its production.	10	L2	CO5
	b.	List different methods used for Hydrogen storage and explain briefly any one method.	6	L2	CO5
	c.	Explain in brief the problems associated with hydrogen.	4	L2	CO5

* * * * *