CBCS SCHEME

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

BETCK105E

First Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
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.	Explain the principles of renewable energy and sustainable development.	6	L1	CO1
	b.	Discuss India and World wide renewable energy availability.	8	L1	CO1
	c.	Briefly discuss Solar Energy Source.	6	L1	CO1
		OR			
Q.2	a.	Explain with a neat sketch, construction and working of Geothermal Energy power plant.	8	L2	CO1
	b.	Write a short note on Internet of Energy [IoE].	6	L2	CO1
	c.	Discuss the Biomass Energy and soil shale.	6	L2	CO1
		Module – 2			
Q.3	a.	Define i) Diffused Radiation ii) Beam Radiation iii) Irradiance iv) Solar constant.	8	L2	CO2
	b.	With a neat diagram, discuss the construction and working of Pyrhelio meters.	6	L2	CO2
	c.	With simple sketch, explain the solar distillation process.	6	L2	CO2
		OR			
Q.4	a.	With a neat diagram, explain solar pond electric power plant.	8	L3	CO2
	b.	Explain the working principles of Photovoltaic cell.	6	L2	CO2
	c.	Write the advantages , disadvantages and application of solar energy.	6	L2	CO2
		Module – 3			
Q.5	a.	Explain the various factors in wind energy site selection.	6	L1	CO3
	b.	With a neat block diagram, explain the working of Wind Energy Convention System (WECS).	8	L2	CO3
	c.	With a neat diagram, explain the working of Horizontal axis wind turbine.	6	L2	CO3
		OR			

Q.6	**a.**	Define Biomass Energy. Explain the Photosynthesis process.	**6**	**L2**	**CO3**
	b.	Explain with a neat sketch, fixed come biodigester.	**8**	**L1**	**CO3**
	c.	With a line diagram, discuss the working of down draft gassifier.	**6**	**L3**	**CO3**
		Module – 4			
Q.7	**a.**	Discuss the problem faced in exploring tidal energy.	**6**	**L2**	**CO4**
	b.	With neat diagram, explain single basin tidal power plant.	**6**	**L2**	**CO4**
	c.	Explain wave energy and list out the advantages and limitations of wave energy.	**8**	**L1**	**CO4**
		OR			
Q.8	**a.**	Explain with a neat sketch, working of OTEC power plant.	**8**	**L2**	**CO4**
	b.	Discuss in detail about the problem associated in OTEC.	**6**	**L1**	**CO4**
	c.	Write a OTEC power station in the World.	**6**	**L1**	**CO4**
		Module – 5			
Q.9	**a.**	Explain the principle and working of Hydrogen fuel cell.	**8**	**L2**	**CO5**
	b.	Classify fuel cells in detail.	**6**	**L2**	**CO5**
	c.	Explain zero energy concepts.	**6**	**L1**	**CO5**
		OR			
Q.10	**a.**	Explain with a neat sketch, electrolysis method for hydrogen production.	**8**	**L2**	**CO5**
	b.	Discuss different method of hydrogen storage (any two).	**6**	**L2**	**CO5**
	c.	Write the advantages and disadvantages of hydrogen fuel.	**6**	**L1**	**CO5**

* * * * *