PVP 20

Code: 20EE4501C

III B.Tech - I Semester – Regular / Supplementary Examinations
NOVEMBER 2023

RENEWABLE ENERGY RESOURCES
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Discuss the factors attenuating the solar radiation on the earth's atmosphere.	L2	CO1	7 M
	b)	Discuss the construction and working of flat plate collector with a neat sketch.	L2	CO1	7 M
OR					
2	a)	Describe the main features of various types of renewable energy resources.	L2	CO1	7 M
	b)	Write the advantages and disadvantages of concentrating collectors over flat-plate types of solar collectors.	L2	CO1	7 M
UNIT-II					
3	a)	Illustrate the performance of PV cell with a neat equivalent circuit diagram.	L3	CO2	7 M
	b)	Explain the concept of Solar pond with a neat schematic.	L3	CO2	7 M

OR					
4	a)	List and explain the different losses that lead to the less efficiency of a Solar cell.	L2	CO2	7 M
	b)	Describe the different methods of energy storage system and explain the solar energy storage system.	L2	CO2	7 M
UNIT-III					
5	a)	Derive the expression for power extracted from wind considering Betz model of a wind turbine.	L3	CO3	7 M
	b)	Illustrate the schematic diagram of the working of anaerobic digestion showing input material and effluents.	L3	CO3	7 M
OR					
6	a)	Explain different types and characteristics of windmill rotors with relevant diagrams.	L4	CO4	7 M
	b)	Describe the working of floating dome type biogas plant and state its advantages.	L2	CO4	7 M
UNIT-IV					
7	a)	Explain the closed cycle OTEC plant and list out the major problems associated with OTEC.	L4	CO5	7 M
	b)	Describe the concepts of converting wave energy into mechanical or electrical energy.	L2	CO4	7 M
OR					
8	a)	Explain the working details of the Tidal Power plant.	L2	CO4	7 M

	b)	Explain the principle and operation of Oscillating water column device wave energy system.	L2	CO4	7 M
UNIT-V					
9	a)	Explain working principle of fuel cell and describe energy storage system using fuel cells.	L4	CO5	7 M
	b)	What are Small hydro power plants and how do you classify them?	L2	CO5	7 M
OR					
10	a)	Explain the working details of MHD generators.	L4	CO4	7 M
	b)	Distinguish different types of Fuel cells.	L4	CO5	7 M