1T00835 - T.E.(Electrical Engineering)(SEM-V)(Choice Base Credit Grading System) (R- 19) (C Scheme) / 32025 - Department Level Optional Course-I: Renewable Energy Sources
QP CODE: 10038287 DATE : 04/12/2023

(3 Hours) **[Total Marks: 80]**

N.B. : (1) Question No.1 is compulsory
(2) Attempt any three from the remaining
(3) Figures to the right indicate full marks

1.	(a)	List out the solar PV technologies and illustrate anyone solar PV technology.	**20**
	(b)	Explain the role of renewable energy and energy storage systems in a futuristic power system scenario.	
	(c)	Write a short note on Solar concentrators.	
	(d)	Illustrate the advantages and disadvantages of vertical axis wind turbine (VAWT).	
2.	(a)	Explain in detail Battery charge controllers and Power Conditioning Unit in solar PV system.	**10**
	(b)	Discuss the power converter used for Doubly fed Induction Generators in wind turbines.	**10**
3.	(a)	Illustrate the significance of MPPT in PV system. Explain perturb and observe MPPT algorithm with the help of suitable diagram.	**10**
	(b)	Explain the working principle of geothermal energy conversion. Write its advantages and disadvantages.	**10**
4.	(a)	Explain the types of wind turbine and Wind turbine characteristics.	**10**
	(b)	Describe solar Flat plate collectors with the help of a neat diagram. State any one application.	**10**
5.	(a)	Describe the electrical power generation with the following technology in brief: Microhydro power plant.	**10**
	(b)	State the effect of the following on solar PV system performance i) Mismatch in modules ii) Blocking diode.	**10**
6.	(a)	Explain the principles of the following technologies i) Wave energy ii) Biomass energy.	**10**
	b)	Discuss Alkaline Fuel cell along with two advantages and disadvantages.	**10**

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