Reg. No.												

Question Paper Code	12188

B.E. /B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023

Seventh Semester

Mechanical Engineering

ME8072 - RENEWABLE SOURCES OF ENERGY

(Regulations 2017)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level,CO
1.	Define geo-thermal energy.	*2,K1,CO1*
2.	Describe renewable and non-renewable energy.	*2,K1,CO1*
3.	Discuss about 'Hour Angle'.	*2,K2,CO2*
4.	Illustrate incident angle.	*2,K2,CO2*
5.	Write performance coefficient of wind turbine.	*2,K1,CO3*
6.	Sketch Darrius type rotor.	*2,K2,CO3*
7.	Write the compositions of bio-gas.	*2,K2,CO4*
8.	Establish aerobic and anaerobic.	*2,K2,CO4*
9.	Write the overall efficiency of an OTEC power plant.	*2,K2,CO5*
10.	Illustrate the limitations of tidal power generation.	*2,K2,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Define Energy. What are the primary and secondary energies?	*13,K1,CO1*
		OR	
	b)	Describe the following applications of	
		(i) Bio energy	*5,K1,CO1*
		(ii)Wind energy	*8,K1,CO1*
12.	a)	Classify and explain the types of instruments for measuring solar radiation.	*13,K2,CO2*
		OR	
	b)	Discuss short notes on	
		(i) Solar pumping	*7,K2,CO2*
		(ii) Solar Cooking	*6,K2,CO2*

13. a) With a neat diagram, explain how wind energy can be converted into electrical energy. *13,K3,CO3*

OR

b) (i) Determine the environmental impact due to installation of a Wind power plant. *6,K3,CO3*

(ii)Write the most favorable sites for installing of wind turbines. *7,K3,CO4*

14. a) With the neat sketch, explain Fermentation process. *13,K3,CO5*

OR

b) Illustrate the factors affecting biogas generation. *13,K3,CO5*

15. a) Sketch a schematic and show the liquid dominated and vapor dominated geo-thermal energy harvesting process. *13,K3,CO6*

OR

b) Explain the operation of hydrogen energy system with Schematic diagram. *13,K3,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) (i) Write the unique advantages of VAWT over HAWT. *7,K3,CO3*

(ii)Sketch the various types of blades in the wind turbine. *8,K3,CO4*

OR

b) Illustrate the performance of the wind turbine identified? Justify with suitable curves. *15,K3,CO4*