Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Renewable Energy Engineering **Semester : VI**
Program: B Tech Electrical Engineering **Time : 03 hrs.**
Course Code: EPEG-3018 **Max. Marks : 100**
Instructions: Attempt all questions. Internal choice is given in question number 11.

SECTION A
(5Qx4M=20Marks)

S. No.	Statement of question	Marks	CO
Q 1	Classify low temperature thermal storage system and list any four advantages of phase change energy storage system.	**4**	**CO1**
Q2	Define and classify geothermal sources.	**4**	**CO2**
Q3	Differentiate between Isovents and Isodynes for wind energy assessment.	**4**	**CO3**
Q4	Tabulate various biomass conversion technologies indicating the principle products obtained from the conversion.	**4**	**CO4**
Q5	List the advantage and disadvantages of the phase change materials used in storing solar thermal energy.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q6	With the help of neat sketch explain the solar geometry and also list the importance of all angles which are the part of solar geometry.	**10**	**CO1**
Q7	Explain the principle of Tidal Power in detail and draw the neat sketch of Tidal Power Plant highlighting its main components.	**10**	**CO2**
Q8	Explain in detail various wind resource assessment techniques and derive the expression of power available in the wind.	**10**	**CO3**
Q9	Discuss the methods for maintaining biogas production and with the help of neat diagram explain the biomass gasifier system.	**10**	**CO4**
	SECTION-C **(2Qx20M=40 Marks)**		
Q10	A feasibility study must be carried for implementing the wind power plant. As an engineer you have been assigned the responsibility to carry out the feasibility study of determining the potential of wind power in the identified area. Discuss the methodology and the data required to determine the wind potential in the identified area. List various kinds of instruments that you will use to conduct this feasibility study.	**20**	**CO3**
Q11	a) Explain the chemistry of gasifier and list down various types of gasifiers with their advantages and disadvantages b) Describe the concept of Biomass Pyrolysis and explain the Pyrolysis of urban waste with the help of neat diagram.	**20**	**CO4**
	OR		

Q11	a) Explain in detail the procedure (flow chart) of extracting Ethanol from wood by from sugarcane. b) Discuss in detail any five parameters which can impact the production of biogas.	**20**	**CO4**