

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)**

III B.Tech I Semester Supplementary Examinations, May - 2024

**RENEWABLE ENERGY ENGINEERING
(Common to ME and ECE)**

Time: 3 hours

Max. Marks: 70M

Answer ONE Question from each Unit

All Questions Carry Equal Marks

Q. No.	Questions	BTL	CO	Marks
UNIT – I				
1.	a) What are the advantages and disadvantages of concentrating collectors over flat plate collectors?	K1	CO1	7M
	b) Explain about any two solar energy storage systems with necessary illustrations.	K2	CO1	7M
OR				
2.	a) Explain and draw the P-V and I-V characteristics of the PV system for different Input quantities of irradiance and temperature.	K2	CO1	7M
	b) Explain the term fill factor and its importance as a performance parameter for a solar cell.	K2	CO1	7M
UNIT – II				
3.	a) Explain how the wind energy conversion systems (WECS) are classified? Discuss in brief?	K2	CO2	7M
	b) Discuss the site selection considerations and basic components of wind energy conversion systems.	K2	CO2	7M
OR				
4.	a) Explain principles of wind energy conversion & describe factors affecting wind speed?	K2	CO2	7M
	b) Explain in detail about the configuration of Horizontal and vertical axis wind turbine	K2	CO2	7M
UNIT – III				
5.	a) Explain the operation of bio-gasifier. Write its applications.	K2	CO3	7M
	b) Explain the analysis of the energy content and its extraction for a hot dry rock type Geothermal resource.	K2	CO3	7M
OR				
6.	a) What are the different sources of Geothermal energy?	K1	CO3	7M
	b) Distinguish between Fixed and Float drum Bio digesters.	K2	CO3	7M
UNIT – IV				
7.	a) Explain the working of Open Cycle OTEC plant with a neat diagram.	K2	CO4	7M
	b) Explain the different types of wave energy conversion devices.	K2	CO4	7M
OR				
8.	a) Explain about the prospects of OTEC in India.	K2	CO4	7M
	b) Explain about single basin arrangement in tidal power generation.	K2	CO4	7M
UNIT – V				
9.	a) Explain working principle of fuel cell and describe energy storage system using fuel cells?	K2	CO5	7M
	b) Explain methods of hydrogen production with illustrations.	K2	CO5	7M
OR				
10.	a) Explain the characteristics of hydrogen-oxygen fuel cell.	K2	CO5	7M