

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
III B. Tech I Semester Regular/Supplementary Examinations, April/May -2025
RENEWABLE ENERGY SOURCES
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

		UNIT-I	
1.	a)	Describe the environmental impacts of solar power ?	[7M]
	b)	Explain about the flat plate and concentric collectors related to the solar energy with a neat sketch ?	[7M]
		(OR)	
2.	a)	Describe the application of solar distillation and drying ?	[7M]
	b)	What are the instruments for measuring solar radiation and sun shine ? Explain	[7M]
		UNIT-II	
3.	a)	Discuss the statistics of wind scenario in the world and India	[7M]
	b)	Describe the classification of WECS ?	[7M]
		(OR)	
4.	a)	Derive the power, torque and speed characteristics of wind energy ?	[7M]
	b)	Distinguish between stand alone and grid connected WECS ?	[7M]
		UNIT-III	
5.	a)	What is meant by Photosynthesis process ? Explain ? What is the meaning of biomass fuels ?	[7M]
	b)	Discuss about the environmental impacts and benefits related to biogas plants ?	[7M]
		(OR)	
6.	a)	Describe the process of obtaining the Biomass to Ethanol ? What are the applications of Gasifier ?	[7M]
	b)	What are the steps that are being followed for the converting urban waste to energy ? What is meant by Biomass energy conversion technologies ? Comment	[7M]
		UNIT-IV	
7.	a)	Explain the principle and components of tidal power plant ?	[7M]
	b)	What is the capacity and potential of tidal power plant ?	[7M]
		(OR)	
8.	a)	Describe the principle of OTEC system ? What are the benefits of OTEC system ?	[7M]
	b)	Discuss about the methods of OTEC power generation ?	[7M]
		UNIT-V	
9.	a)	What is the working principle of MHD power generator ? Discuss about the social considerations and environmental impacts of MHD power generator ?	[7M]
	b)	What are the merits and demerits of Geothermal energy ?	[7M]
		(OR)	
10.	a)	Describe about the financial mechanism concerned to MHD power generation ?	[7M]
	b)	Write about the carbon credits and economic aspects of MHD power generation ?	[7M]
