Course Code:23EE5E01

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

III - B.Tech I-Semester Supplementary Examinations (BR23), Mar/Apr - 2026

RENEWABLE ENERGY SOURCES

(CE)

Time: 3 hours | Max. Marks: 70

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	What is the main difference between a flat plate solar collector and a concentrating solar collector?	(2M)	CO1	L1
b)	List two types of concentrating collectors used for solar energy	(2M)	CO1	L1
c)	List the basic components of a Wind Energy Conversion System (WECS)	(2M)	CO2	L1
d)	Explain the primary considerations for site selection in wind energy conversion.	(2M)	CO2	L2
e)	Explain the role of Bio digestion in biomass conversion.	(2M)	CO3	L2
f)	Define a micro hydel plant.	(2M)	CO3	L1
g)	Define Ocean Thermal Electric Conversion (OTEC).	(2M)	CO4	L1
h)	Explain the basic principle of Tide Energy.	(2M)	CO4	L2
i)	List two common methods of Hydrogen production.	(2M)	CO5	L1
j)	Explain the basic principle of operation for Magneto Hydro Dynamic (MHD) Power generation	(2M)	CO5	L2

PART–B (5X10 = 50M)

2.	Explain the fundamental principle of a Solar Photovoltaic (PV) system with a neat diagram.	10(M)	CO1	L2
	(OR)			
3.	Explain the working of a Grid-Connected Photovoltaic (PV) System with a neat block diagram and its applications.	10(M)	CO1	L2
4.	List the various factors for Site selection for Wind Energy Conversion system (WECS)?	10(M)	CO2	L1
	(OR)			
5.	Compare Horizontal-Axis Wind Turbines (HAWT) and Vertical-Axis Wind Turbines (VAWT). Discuss their working principles.	10(M)	CO2	L4
6.	Classify the different types of hydroelectric power stations and explain each with examples.	10(M)	CO3	L3
	(OR)			
7.	Explain the advantages and disadvantages of geothermal energy, covering environmental, economic, and technical aspects.	10(M)	CO3	L2

8a.	Explain the various factors that affect the amount of available wave energy at a site.	5(M)	CO4	L2
b.	List the advantages and disadvantages of tidal power generation.	5(M)		L3
	(OR)			
9.	Draw a simple block diagram of an open-cycle OTEC system and explain its working in brief.	10(M)	CO4	L2
10a.	What is a fuel cell? List and briefly classify its main types based on the electrolyte.	5(M)	CO5	L1
b.	What are the main factors that affect the performance of a fuel cell?	5(M)		L1
	(OR)			
11a.	What are the main types of electrolytic technologies used to produce hydrogen? Describe each briefly.	5(M)	CO5	L1
b.	List the advantages and disadvantages of hydrogen energy.	5(M)		L1

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