Course Code: 23VL3E06

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

II - M. Tech I-Semester Regular/Supplementary Examinations (BR23), Dec - 2025

WASTE TO ENERGY (VLSI)

Time: 3 hours | Max. Marks: 75

Answer any Five Questions One Question for One UNIT
ALL the Question Carry Equal Marks

	UNIT-I	**Marks**	**CO**	**BL**
1.a)	What are the different kinds of waste? Explain different types of waste in details.	7M	C212.1	L3
b)	Discuss Forest residue briefly.	8M	C212.1	L3
	OR			
2.a)	What is MSW? Explain solid waste management.	7M	C212.1	L1
b)	Write short notes on conversion devices with respect to waste management.	8M	C212.1	L1

	UNIT-II	**Marks**	**CO**	**BL**
3.a)	Discuss slow pyrolysis method in detail.	7M	C212.2	L1
b)	Explain the following types of charcoal production processes (i) Earth kiln (ii) Brick kiln (iii) Metal kiln	8M	C212.2	L2
	OR			
4.a)	Write down the short notes on charcoal.	7M	C212.2	L2
b)	Define Syngas? How syngas is produced. Mention primary applications of Syngas in various engineering fields.	8M	C212.2	L3

	UNIT-III	**Marks**	**CO**	**BL**
5.a)	Write short notes on (i) Fluidized bed (ii) Downdraft gasifier	7M	C212.3	L2
b)	Explain the design, construction and operation of fixed bed system.	8M	C212.3	L2
	OR			
6.a)	How gasifier output is utilized in Electrical Power Plants?	7M	C212.3	L3
b)	Explain Gasifier burner arrangement for thermal heating in detail.	8M	C212.3	L2

	UNIT-IV	**Marks**	**CO**	**BL**
7.a)	Analyze the role of modern biomass stoves in reducing greenhouse gas emissions and improving energy efficiency.	7M	C212.4	L4
b)	Describe the construction and operational mechanism of a fluidized bed combustor (FBC). Include a diagram to illustrate the design.	8M	C212.4	L1
	OR			
8.a)	Explain how inclined combustors are suited for specific biomass fuels. What are the parameters affecting their efficiency?	7M	C212.4	L2
b)	Compare the energy output and emissions of inclined combustors and fluidized bed combustors. Which is more suitable for large-scale applications and why?	8M	C212.4	L4

	UNIT-V	Marks	CO	BL
9.a)	What is meant by Biomass resources? Classify biomass resources based on their application.	7M	C212.5	L1
b)	Explain Alcohol production from Biomass	8M	C212.5	L2
	OR			
10.a)	Write short notes on (i) Urban Waste to Energy Conversion (ii) Biomass Energy Programme	7M	C212.5	L1
b)	Analyze the challenges faced by the Biomass Energy Programme in India, including technological, financial, and policy-related issues.	8M	C212.5	L4

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