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EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY
An Autonomous Institution Affiliated to Visvesvaraya Technological University (VTU) Belagavi

USN | | | | | | | | | | |

25MPD11

First Semester M.Tech Degree Examination, March 2026
WASTE TO ENERGY

TIME:3 hrs. Max.Marks:100

Note: 1. Answer any FIVE full questions, choosing ONE question from each MODULE
2. M: Marks, L: Bloom's level,C: Course outcomes.

		Module-1	M	L	C
Q.1	a	Explain the energy potential of agro-based and forest residue wastes.	10	L3	CO1
	b	Define Municipal Solid Waste (MSW).	5	L2	CO1
	c	List any two industrial wastes suitable for energy conversion.	5	L2	CO1
		OR			
Q.2	a	Describe the working principle of incinerators used in waste-to-energy systems.	10	L3	CO1
	b	Explain any two-conversion device used for waste-to-energy.	10	L3	CO1
		Module–2			
Q.3	a	Explain the manufacture of charcoal and its applications.	10	L3	CO2
	b	Compare slow pyrolysis and fast pyrolysis.	5	L2	CO2
	c	Mention any two applications of pyrolytic gases.	5	L2	CO2
		OR			
Q.4	a	Define biomass pyrolysis and explain its principle.	10	L3	CO2
	b	Write short notes on charcoal	10	L2	CO2
		Module–3			
Q.5	a	Explain the principle of biomass gasification.	10	L3	CO3
	b	What is a fluidized bed gasifier?	5	L2	CO3
	c	Mention any two advantages of biomass gasification.	5	L2	CO3
		OR			
Q.6	a	Describe the construction and working of downdraft and updraft gasifiers.	10	L3	CO3
	b	Explain gasifier engine arrangement for electrical power generation.	10	L3	CO3
		Module–4			
Q.7	a	Explain the working of improved chullahs with neat sketches.	10	L3	CO4
	b	State any two advantages of fluidized bed combustion.	5	L2	CO4
	c	Mention any two exotic biomass stove designs.	5	L2	CO4
		OR			
Q.8	a	Describe inclined grate combustors.	10	L3	CO4
	b	Explain the construction and operation of fluidized bed combustors.	10	L3	CO4

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		Module–5			
Q.9	**a**	Describe the design and constructional features of a biogas plant.	**10**	**L3**	**CO5**
	b	State the significance of the biomass energy programmes in India.	**5**	**L2**	**CO5**
	c	Mention any two applications of biogas.	**5**	**L2**	**CO5**
		OR			
Q.10	**a**	Explain the properties and composition of biogas.	**10**	**L3**	**CO5**
	b	Explain anaerobic digestion as a biochemical conversion process.	**10**	**L3**	**CO5**

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