



GIET UNIVERSITY, GUNUPUR – 765022
M. Tech. (Third Semester) Examinations, December – 2022
MOEBT3026/MOECH3026 – WASTE TO ENERGY
(Biotech/Chemical)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)**PART – A****(2 x 10 = 20 Marks)**

Q1. Answer all questions

	CO#	Blooms Level
a. Biogas is a good domestic fuel .Justify	CO1	1
b. Analyse the Potential application of Biomass as value added products.	CO1	2
c. What is biomass? Is it sustainable energy?	CO2	1
d. Identify the feedstock's for biomass energy production? How are they processed?	CO1	2
e. Justify Biomass to energy is a viable energy source.	CO3	3
f. What are the raw materials used for making biogas?	CO2	1
g. How is charcoal prepared? Explain why, charcoal is a better fuel than wood?	CO3	2
h. What is the main product of gasification?	CO3	3
i. Why is steam used in gasification?	CO4	2
j. What is a gasification agent?	CO1	1

PART – B**(10 x 5 = 50 Marks)**Answer ANY FIVE questions

	Marks	CO#	Blooms Level
2. a. Enlist the Biomass Feedstock for the thermal conversion processes.	5	CO1	1
b. Enumerate the potential biomass products.	5	CO1	2
3.a. Discuss in detail about the Overall Steps Involved in Biomass Gasification.	4	CO1	2
b. Analyse the Mechanisms of the Biomass Gasification Process mentioning the schematic representation.	6	CO2	3
4.a Conceptual diagram with respect to the mechanism of gasification demonstrated in multiple steps fixed-bed.	8	CO3	4
b. What are the responsible factors which effecting the Gasification Process	2	CO3	2
5. Review the Thermo chemical Biomass Gasification with Current Status of the Technology.	10	CO2	4
6. a. Emphasise the Biomass-to-Bio energy production Routes through Biological conversion, Chemical conversion and Thermal conversion Processes.	7	CO3	2
b. Schematically represent the Processes involved in overall biomass gasification.	3	CO3	3
7.a. What is the difference between 1st 2nd and 3rd generation?	4	CO4	2
b. Discuss with possible chemical reaction for the Biodiesel production from triglyceride oils.	6	CO4	3
8. a. Discuss in detail about the metabolic process that converts sugar to acids, gases or alcohol	4	CO4	2
b. Mentions the chemical equation of alcoholic fermentation and Lactic acid fermentation from glucose.	6	CO4	4

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