R22 Regulation *Subject code: 4O8BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Regular Examinations, May 2026

ENERGY FROM WASTE

(Common to EEE & CSE(DS))

Maximum Marks: 60 Date:06.05.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BTL
1.a)	List out the classification of wastes fuel?	1	1	1
b)	List out the various conversion devices for wastes fuel?	1	1	1
c)	List out the gases produced during pyrolysis?	1	1	1
d)	Differentiate between slow and fast pyrolysis?	1	1	2
e)	Differentiate between downdraft and updraft gasifiers?	1	2	2
f)	Define the fixed bed gasifier system?	1	2	1
g)	Define biomass combustion?	1	3	1
h)	Describe about an inclined grate combustor?	1	3	3
i)	List out the properties of biogas?	1	4	1
j)	List out the different types of biogas plants?	1	4	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Describe the working, advantages, and limitations of incinerators, gasifiers, and digesters.	10	1	3
	OR			
3	Explain the role of MSW in energy generation and challenges in its utilization.	10	1	3
4	Describe the traditional and modern methods of manufacture of charcoal.	10	1	3
	OR			
5	Discuss the industrial importance of pyrolysis products (char, oil, gas).	10	1	2
6	Differentiate between the fixed bed vs fluidized bed gasifier systems.	10	2	2
	OR			
7	Describe the gasifier burner arrangement for thermal heating.	10	2	3
8	Differentiate between inclined grate combustors and fluidized bed combustors.	10	3	2

	OR			
9	Describe about the design, construction, and operation of biomass stoves and improved challahs.	10	3	3
10	Describe about Thermo chemical and biochemical conversion processes in detail.	10	4	3
	OR			
11	Explain in detail about biomass energy program in India.	10	4	3