

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE474

Course Name: MUNICIPAL SOLID WASTE MANAGEMENT

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Classify solid waste based on source and define each. (10)
- b) What are the physical characteristics of MSW? (5)
- 2 a) Using the data for a MSW sample provided below, find the average moisture content of the sample. Base your calculations on a 100 kg sample size. (5)

Component	Moisture content (%)	Weight (%)
Paper waste	7	25
Yard waste	55	18
Food waste	65	20
Plastic	2	5
Wood	20	8
Glass	3	7
Metals	3	9
Textiles	12	8

- b) What are the advantages of estimating the quantity of waste generated? (5)
 - c) Write the impact of industrial waste on environment (5)
 - 3 a) Estimate the energy content on dry and ash free dry basis of a solid waste sample (10)
- with the following compositions. Assume over all moisture and ash content of solid wastes is 21% and 5% respectively. Assume a mass of 100kg.

Component	Food waste	paper	Card board	plastics	Garden Trimming	Wood	Tin can
% by weight	15	45	10	10	10	5	5
Energy kJ/kg	4650	16750	16300	32600	6500	18600	700

- b) What are the impacts of C&D waste on environment? (5)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Write a note on mechanical volume reduction. (5)
- b) With a flow chart, explain recovery of resources from solid waste. (10)
- 5 a) What is the role of transfer station in solid waste management? (5)
- b) Explain the procedure adopted for chemical and biological conversion of solid waste. (10)
- 6 a) What is the significance of component separation in solid waste management? (5)
- b) Describe magnetic separation and the equipment used for it. (5)
- c) What are the various collection systems in MSWM? (5)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Write the Indore process and its advantages. (8)
- b) With neat sketch explain the various parts of an Incinerator. (8)
- c) Explain the composition of Incinerator effluent gas. (4)
- 8 a) Explain vermi composting. (7)
- b) Define incineration and its merits and demerits (8)
- c) What are the benefits of composting? (5)
- 9 a) Explain the components of Sanitary landfill with neat sketch. (14)
- b) Write briefly on anaerobic digestion of waste? (6)