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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. – Civil Engineering

Semester End Examination; Dec. - 2014

Solid Waste Management

Time: 3 hrs *Max. Marks: 100*

Note: *Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part.*

PART – A

1 a. Explain how land pollution takes place due to dumping of solid waste. 10

b. With the help of a flow diagram, explain the inter-relationship between the functional elements of solid waste management. 10

2 a. Estimate moisture content and energy content of typical municipal solid waste of following compositions

Component	Percent by wt. %	M.C %	solid waste / kg	Energy kJ/kg	Dry. wt. kg
Food wastes	9.0	70	19.8	4,600	2.7
Paper	34.0	6	74.8	16,560	32.0
Card board	6.0	5	11.0	16,100	5.7
Plastics	7.0	2	15.4	32,200	6.9
Textiles	2.0	10	4.4	17,250	1.8
Wood	2.0	20	4.4	18,400	1.6

10

b. With example explain any two methods of quantifying municipal solid waste generated. 10

3 a. With the help of a neat sketch explain the exchange container mode of hauled container system. What are its advantages? 10

b. Discuss the following: 10

i) Density separation ii) Magnetic separation.

4 a. Describe the process of pyrolysis and inceneration as applied to municipal Solid waste treatment. 10

b. Explain the working principle of incinerator with the help of a neat diagram. 10

PART – B

5 a. Distinguish between aerobic and anaerobic composting. Name the influencing factors of composting. 10

b. Explain the Indore process of solid waste composting. 10

Contd…2

6	a.	Risk at least 10 important factors to be considered in the design of landfills.	10
	b.	With the help of a neat sketch explain the collection of leachate and venting the gases from sanitary landfills.	10
7	a.	State the criteria to be considered for site selection to dispose the solid waste.	10
	b.	How the following processes are adopted as disposal methods? i) Grinding and discharging into sewage ii) Flowing in the field.	10
8	a.	Distinguish clearly between direct and indirect energy recovery forms. Explain any one of them in detail.	10
	b.	Classify the major uses of recycled paper. Write briefly on Refuse – Derived Fuel (RDF).	10

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