

# THAPAR UNIVERSITY, PATIALA

Department of Biotechnology and Environmental Sciences

BE (Civil) IV Year  
Mid-Semester Examination – March 11, 2010  
Time : 2 hours; Maximum Marks : 40

CE-046 : Solid and Hazardous Waste Management  
Instructor  
N. Tejo Prakash

1. Question paper has two sections A & B
2. All parts of the questions should be attempted in series

## SECTION A

(ANSWER ANY 4 OUT OF 5 QUESTIONS GIVEN BELOW)

	Marks
Q1 Describe any two physical and two chemical properties of MSW and their importance in waste management perspective.	6
Q2 What are the important questions to be addressed for promoting recycling of waste? Describe the need and process steps associated with recycling of paper.	6
Q3 What are the important factors that would influence the screening of waste using trammel screen? Differentiate between cascading, cataracting and centrifuging behaviour of waste in a trommel screen.	6
Q4 Describe how carbon content, oxygen and temperature influence the composting process.	6
Q5 Describe the processes associated with particle charging in electrostatic precipitator.	6

## SECTION B

(ANSWER ANY 8 OUT OF 10 QUESTIONS GIVEN BELOW)

Q1 What are the work elements that would comprise integrated waste management system?	2
Q2 What are pre-requisite data required for calculating energy content of the waste using (a) Dulong formula and (b) Khan formula	2
Q3 What do the three arrows of recycling symbol depict?	2
Q4 What are the environmental and process benefits of recycling glass?	2
Q5 What are the factors that influence air classification of waste materials?	2
Q6 What is an eddy current separator?	2
Q7 What are three 'T's that influence incineration process?	2
Q8 Name the processes used for removal of acid gases in flue gas exhaust.	2
Q9 What are the different velocities that influence the movement of flue gas in a cyclone?	2
Q10 What are advantages and disadvantages of ESPs?	2