



17/12/2012

DOON UNIVERSITY, DEHRADUN
Semester Final Examination, First Semester, 2012
School of Environment & Natural Resources

M.Sc. (Environmental Studies)
Course: EES – 551 :Environmental Waste Management

Time Allowed: Three Hours

Maximum Marks: 50

Note: Attempt Questions from All Sections: A, B, C

Section: A (Answer limit – 25 words). Attempt ALL Questions.

(Marks: 10 x 1 = 10)

1. What are the major collection systems for municipal solid waste in India at urban centres?
2. What is P2 and R3 waste management strategy?
3. Enlists major stockholders in waste management system in any urban centre
4. Define vermicomposting and also write major advantage of this technology over conventional thermal composting mechanism
5. What is the major composition of landfill gas?
6. What are the advantages and disadvantages of waste combustion technology?
7. What are the products of aerobic and anaerobic digestion?
8. Define RDF (Refuse derived fuels)
9. Advantage and disadvantage of sanitary landfilling technology
10. What is the preferable waste management hierarchy in modern waste management system?

Section: B (Answer limit – 250 words). Attempt ALL Questions.

(Marks: 5 x 6 = 30)

1. Describe principle sources, characteristics and composition of WEEE or e-waste. Also discuss the input, unit operation and output of first and second level WEEE/E-waste treatment processes.
2. Describe the aerated static pile and windrow composting methodology in detail with system diagram.
3. Describe the different operation units of a typical incinerator with suitable diagram. Also write about major gases products derived from combustion of municipal solid waste.
4. Describe wet processing and wet processing for RDF generation system. Also discuss major benefits of this technology.
5. Write comments on following:
 - a. ISWM (Integrated Solid Waste Management) system
 - b. Flaring system.

Section: C (Answer limit – 750 words). Attempt ALL Questions.

(Marks: 10)

1. Describe the sanitary landfilling technology in detail with following points: (Marks = 2+2+2+4)
 - (a) What is a sanitary landfill and how it can be a safe mode of waste disposal?
 - (b) Criterion for site selection and methods of sanitary landfills
 - (c) Liners and landfill covering system
 - (d) Generalized phases in generation of landfill gases elaborating chemical kinetics during different phases