

Dr Rishi Raw

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
T2 - EXAMINATION (October - 2019)
B.Tech. (VII – SEM)

COURSE CODE: 14M31CE115

MAX. MARKS: 25

COURSE NAME: Solid Waste Management

COURSE CREDIT: 3

MAX. TIME: 1.5 HRS

Note: Attempt all questions. Assume suitable data if required. Carrying of mobile phone during examinations will be treated as case of unfair means

1. What are the environmental effects of landfilling? (2Marks) (CO 4)
2. Explain different applications of LCA? (3 Marks) (CO4)
3. (a) Given that 1000 tonne/h of solid waste is applied to a rotary screen for the removal of glass prior to shredding, determine the recovery efficiency and effectiveness of the screen, based on the following experimental data: (CO 5)
 - (a) The Percentage of glass in solid waste= 8%
 - (b) Total Weight of material in underflow= 10 tonne/h
 - (c) Weight of glass in screen underflow= 7.2 tonne/h (4 Marks)
- (b) What are the various component separation techniques? Discuss in detail. (3 Marks) (CO-3)
4. With the help of schematic diagram explain in detail a sanitary landfill explaining various processes? (4 Marks) (CO-3 & 4)
5. A contractor agreed to haul the solid wastes from an industrial district of a city. The industries agreed to store their wastes on large containers located at strategic points. Due to the sizes of the containers, the hauled –container system of collection is to be used. Based on a traffic study, t_1 , t_2 and d_{bc} were found to be 15, 20 and 9 minutes respectively. If the round trip hauls distance averaged 60km at a speed limit of 55mph, how many containers can be serviced on a collection day of 8 h?
(Take the values- $s = 0.1\text{h/trip}$; $a = 0.016$; $b = 0.011$) (3 Marks) (CO-2)

6. What are screens and the different factors affecting its selection in solid waste? With neat sketches, briefly describe the different types of screens? **(4 Marks)** **(CO-6)**

7. Write short note on drying and dewatering? **(2 Marks)** **(CO-5 & 6)**