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Reg. No. :

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**Question Paper Code: 59112**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Civil Engineering

15UCE912- MUNICIPAL SOLID WASTE MANAGEMENT

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Vegetable wastes resulting from the handling, sale, storage, preparation, cooking and serving of food is known as CO1- R  
(a) Rubbish (b) Garbage (c) Ashes (d) Bulky waste
2. The density of ash produced in MSW is CO1- R  
(a) 100 kg/m<sup>3</sup> (b) 450 kg/m<sup>3</sup> (c) 700 kg/m<sup>3</sup> (d) 1000vkg/m<sup>3</sup>
3. The important issues associated with public health aspects of storage through CO2-R  
(a) Improper handling (b) Containers  
(c) Disease vectors and pathways (d) Disposal
4. The storage containers should not less than \_\_\_\_\_ and not more than \_\_\_\_\_ gallons capacity. CO2-R  
(a) 20,33 (b) 33,20 (c) 16,40 (d) 20,40
5. \_\_\_\_\_ and \_\_\_\_\_ are the most well known places which use Envac automated waste collection system. CO3-R  
(a) Disney world (b) Korea (c) Roosevelt island (d) Both 1 and 2
6. Tick the one that is not a principle methods of transfer solids CO3-R  
(a) Motor vehicles (b) Rail roads (c) Ocean (d) Air transfer

7. \_\_\_\_\_ is process in which organic material is heated in vacuum to lower its boiling point and to avoid adverse chemical reaction CO4- R  
 (a) vaccum pyrolysis (b) incineration (c) gasification (d)energy recovery
8. The type of incinerators used for burning wastes of capacity more than 500 kg/hr are \_\_\_\_\_ CO4- R  
 (a) Domestic (b) Municipal  
 (c) Commercial (d) Industrial
9. In which method of disposal of MSW the waste is dumped in soil CO5- R  
 (a) incineration (b) composting (c) land filling (d) shredding
10. The slopes in landfills should be \_\_\_\_\_ CO5- R  
 (a) Greater than 20 (b) greater than 1 and less than 20  
 (c) less than 5 (d) None of the above

PART – B (5 x 2= 10Marks)

11. State the effects of improper disposal of solid waste on public health CO1- R
12. Name any two types of equipment used for the on site handling of solid waste CO2- R
13. What are transfer stations ? CO3- R
14. Differentiate between Bangalore method and Indore method. CO4- R
15. List out the advantage of segregated solid waste disposal by sanitary landfilling. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) (i) Classify and illustrate solid waste based on source based classification and type based classification. CO1- U (8)
- (ii) What are the factors affecting separation of solid water? Explain them briefly. CO1- U (8)

Or

- (b) Summarize the need of public awareness and role of NGOs in solid waste management. CO1- App (16)
17. (a) (i) List and illustrate the factors affect the waste collection. CO2-U (8)
- (ii) write a note on 'onsite' segregation of solid waters. CO2-U (8)

Or

- (b) Explain the various issues related to public health and economic aspects of open storage of municipal solid waste CO2-U (16)
18. (a) Explain with neat diagram the collection vehicle routing CO3- U (16)
- Or
- (b) Summarize the site selection and operation of transfer station CO3- U (16)
19. (a) Explain different types of composting methods with neat sketches. CO4- U (16)
- Or
- (b) Explain in detail about the recovery of wastes CO4- U (16)
20. (a) Explain in detail about the factor should be considered for the site selection of sanitary landfill. CO5- U (16)
- Or
- (b) (i) Discuss about environmental effects of land filling. CO5- U (8)
- (ii) write a note an collection and its treatment. CO5- U (8)

