

**P P SAVANI UNIVERSITY**

Fifth Semester of B.Sc. Examination

Dec.-Jan.-2020-2021

**SSES3130-Solid & Hazardous Waste Management**

09.01.2021, Saturday

Time: 10:00am. to 12:30p.m.

Maximum Marks: 60

**Section-A (Total Marks - 20)**

**Q.1 Objectives (20 MCQ Compulsory-1 mark each)**

**(20)**

Hazardous waste consists of:

- 1
  - A Agricultural waste
  - B Production waste
  - C Food & garden Waste
  - D Commercial wastes
  
- 2 Slaughterhouse wastewater is highly concentrated with \_\_\_ % soluble and \_\_\_ % suspended organic composition.
  - A 35, 55
  - B 80, 20
  - C 55, 45
  - D 45, 55
  
- 3 In composition of municipal solid waste in typical Indian cities, which type of waste is least generated in % than other type of wastes?
  - A Textiles
  - B Inert
  - C Metals
  - D Glass & ceramics
  
- 4 Why is it difficult to recycle plastics?
  - A It is very hard
  - B It is adhesive
  - C It contains different types of polymer resins
  - D None
  
- 5 Quantum of generation of Iron tailing industrial waste is \_\_\_\_.
  - A 11.25 million tonnes per annum
  - B 35.0 million tonnes per annum
  - C 3.0 million tonnes per annum
  - D 0.0164 million tonnes per annum
  
- 6 What is the colour code for segregation of biomedical waste: Waste sharps (Needles, syringes, blades, etc.)?
  - A Red
  - B Blue/ white
  - C Black
  - D Yellow
  
- 7 Which agency or association based in Ahmedabad has successfully improved the living conditions of women paper pickers, by organizing them into cooperatives and by searching for easily accessible raw materials in bulk quantity?
  - A Self Employed Women's Agency (SEWA)
  - B Self Employment Women's Association (SEWA)
  - C Self Employed Women's Association (SEWA)
  - D Social Employment Women's Agency (SEWA)
  
- 8 For developing countries, what is the most economically viable option available both in terms of employment generation for the urban poor with no skills and investment?
  - A Collection of waste
  - B Recycling of waste
  - C Transportation of waste
  - D Generation of waste

- 9 NSWAI refers to:  
A Nation Solid Waste Authority of India  
B National Sludge Waste Association of India  
C Noble Solid Waste Association of India  
D National Solid Waste Association of India
- 10 Which of the following is an unscientific way of disposal creating problem during rainy season and flooding, causing various diseases and leading to contamination of groundwater?  
A Open Dumping  
B Combusting  
C Chlorination  
D Segregation
- 11 For design of engineered landfill, use of clay with plasticity index should be between:  
A 10 & 30  
B 100 & 130  
C Above 200  
D None
- 12 Which of the following statements is true about zero waste management?  
A Separate collection of each kind of waste  
B Segregation of garbage at the source  
C Community involvement  
D All of the above
- 13 Per capita per day of waste production will increase to \_\_\_ in 2050.  
A 0.9 kg  
B 0.7 g  
C 0.7 kg  
D 0.9 mg
- 14 Improper disposal causes \_\_\_ because of breeding of rats, flies and other disease vectors.  
A Water pollution  
B Greenhouse effect  
C Land pollution  
D Plague
- 15 Blast in the Bhushan steel factory at Noida, caused due to:  
A Due to dumping of solid waste and construction debris  
B Sewage line clogging  
C Due to imported scrap from Iran  
D Consumption of plastic bags
- 16 Waste generated due to refurbishment is a type of \_\_\_ waste.  
A Agricultural waste  
B Construction and demolition waste  
C Industrial waste  
D Commercial waste
- 17 Water in excess of the field capacity will be released as \_\_\_\_\_.  
A Leachate  
B Solid waste  
C Volatile matter  
D Fuel
- 18 Difference between direct load and the storage load transfer station is that:  
A The wastes are emptied directly into the storage pit  
B The latter is designed with the capacity to store waste  
C Capacity to transfer without compaction  
D Capacity to transfer with processing and compaction facilities



- 19 Which of the following is not a factor that must be considered in the onsite storage of solid wastes?
- A Public health and aesthetics
  - B The type of containers to be used
  - C Rates of transportation
  - D The effects of storage on the waste components
- 20 Which of the following is not included in the following unit operations of hall collection system?
- A Pickup
  - B Haul
  - C Off site
  - D Off route

Section-B (Total Marks - 40)

- Q.1 Short Notes (attempt all four compulsory- 3 marks each) (12)
- A Compositional variation of municipal solid waste in India
  - B Categorization of plastic
  - C Importance of waste quantification
  - D Waste handling and separation at high rise dwellings.
- Q.2 Explain in detail (attempt any four-7 marks each) (28)
- A Explain the E-waste management and handling rule 2011.
  - B Describe the effect of public attitudes and legislation on waste generation.
  - C What are the components of engineered landfill and objectives to be considered in design of engineered landfills?
  - D Describe the siting criteria for development of landfills.
  - E Explain direct load transfer station and storage load transfer station.