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[24/A-3]

SEAT No. _____

No. of Printed Pages: 02

(24/12)

SARDAR PATEL UNIVERSITY
M. Sc. -Integrated Biotechnology – Ninth Semester Examination
Friday, 22nd March 2019
Time: 10:00 am to 01:00 pm
PS09CIGIB2: Waste Management

Total Marks – 70

- Q.1** Mark the right answer of following questions. **[08]**
1. Deep-well injection is most likely to pollute _____ if the hazardous waste escapes from storage.
a. Food b. Oceans c. Ground water d. Air e. Land
 2. What is the least preferable option?
a. Reuse b. Recycle c. Treatment d. Waste to energy e. Disposal
 3. Which method is used if suitable dumping areas are not available?
a. Composting b. Incineration c. Pulverization d. Dumping in to the sea
 4. The simplest and most common method used in the cities is to collect and dump the waste in a _____.
a. b. Landfill b. River c. Ocean d. Space e. All of these
 5. What are hazardous traits?
a. Ignitable b. Corrosive c. Reactive d. Toxic e. a & b both f. All of these
 6. Under which rule of government guidelines for solid waste management are followed today?
a. MSW Rules, 2000 c. Solid waste Rules, 2000
b. MSW Rules, 201 d. Solid waste Rules, 2016
 7. Man-made radiations include: _____.
a. Nuclear weapon b. Nuclear power plant c. X-rays d. All of these
 8. Feature(s) of zero waste management is (are): _____.
a. Separation of garbage of source c. Separate collection of each kind wastes
b. Involvement of community in all activities d. All of these

- Q.2** Answer the following questions. (ANY SEVEN OUT OF NINE) **[14]**
1. Write advantages of reuse and recycling of waste components.
 2. Enlist the types of E-wastes.
 3. What are the advantages of color-coded waste containers used for BMW?
 4. Write advantages of syngases.
 5. Which different materials/components present in MSW?
 6. Enlist disposal facilities used for radioactive waste.
 7. Which different types of pollutants are present in bio-medical wastes?
 8. What are the advantages of waste minimization and size reduction?
 9. Enlist physical treatment processes generally used for hazardous waste management.

(1)

(P.T.O.)

- Q.3 A. Explain physical and chemical properties of municipal solid wastes. [06]
B. Summarize the role of each component used in material recovery facilities of MSW. [06]
- OR
- B. Write short notes on: 1. Refuse Derived Fuel. [06]
2. Categories of solid wastes.
- Q.4 A. Describe guidelines for transportation of hazardous wastes and write risk assessment of hazardous wastes. [06]
B. Write a note on solidification and stabilization technologies used to treat hazardous wastes. [06]
- OR
- B. Discuss various characteristics of hazardous wastes and enlist types of hazardous wastes. [06]
- Q.5 A. Briefly explain E-waste recycling and treatment of E-waste. [06]
B. Write short notes on: 1. Effects of E-wastes on environment and human health. [06]
2. Types radioactive wastes.
- OR
- B. Give an account on treatment of radioactive waste. [06]
- Q.6 A. Write rules of BMW segregation. Write a note on segregation, collection, labelling and storage of bio-medical wastes. [06]
B. Give a short note on on-site and off-site treatment of BMW with its advantages and disadvantages. [06]
- OR
- B. Outline the process of sanitary landfilling. [06]