

SEAT No. \_\_\_\_\_

[104]

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Sardar Patel University

External Examination, 2018

M.Sc. (Environmental Science and Technology), 4<sup>th</sup> SEMESTER

Date: 10<sup>th</sup> April, 2018 Time: 02.00pm to 05:00pm Total Marks: 70

Subject: Waste Management and Control Technology

Subject code: [PS04CEST05]

N.B: i. Draw neat and labeled diagrams wherever necessary to score full marks.

ii. All questions compulsory and carries equal marks.

Q.1. Write the correct options.

(8 Marks)

- 1) In classification of BMW, Incineration waste is included in which category?  
a) 2 b) 5 c) 8 d) 9
- 2) Leachate is generated in ..... Form  
a) Gas b) liquid c) semi solid d) Non of the above
- 3) In the composting process, Anaerobic decomposition takes place ..... months.  
a) 2-3 b) 3-4 c) 4-5 d) 4-6
- 4) Pyrolysis is one done in the ..... oxygen.  
a) presence b) absence c) Non d) all.
- 5) HW-MH rule was again amended in .....  
a) 2000 b) 2001 c) 2002 d) 2003
- 6) SPCB regulates the import of HW under Schedule .....  
a) IV b) I c) II d) III
- 7) Which nanoparticle is stronger  
a) Carbon black b) Nanotube single walled c) Nanotube multi walled d) Bucky ball
- 8) Name the nanoparticles used in washing machines  
a) TiO<sub>2</sub> b) AgO c) FeO d) ZnO

Q.2. Write a Short notes (any Seven)

(7x2=14)

1. Describe structure, synthesis and uses of TiO<sub>2</sub> nanoparticles
2. Describe structure, synthesis and uses of Silver nanoparticles
3. Steps in the Management of BMW
4. Physical Characteristics of Waste
5. Proximate analysis of SW
6. Open window composting method
7. List of liners used for landfilling
8. Passive Gas collection System
9. Explain Terms: MSEG, MIC

Q.3.a) Explain the principle of Sanitary Landfilling? How properties of solid waste are changed? Explain with Graph. (6)

b) i) Write the note on different Transfer station involved in SWM. (3)

ii) Explain the onsite storage, handling and processing (3)

OR

C.P.T.O.)

b) Describe about the collection function element in detail. Explain the types of Collection System with diagram. (6)

Q.4 a) What are the different objectives of Incineration? Explain the working of waste- to Energy plant with diagram. (6)

b) Explain the thermal and mechanical technology related to Bio medical waste. (6)

OR

b) According to BMW (Management and Handling, 1998) rule, enumerate the classification of BMW. (6)

Q.5. (a) Describe Characteristic Hazardous Wastes and Listed Wastes with its properties and suitable examples. (6)

(b) Briefly describe about Zonation System, Flammability Unit, Flash Point, and T Code. (6)

Or

(b) Explain Chemical reduction, Deactivation, and Macroencapsulation. Draw Flowcharts of Dealing with Hazardous Wastes, Industrial Ecosystem, Benefits of Recycling. (6)

Q6. a). Define nanoparticles and explain properties and applications of organic nanoparticles (6)

b) Enumerate nanoparticles in aquatic and terrestrial Environment (6)

OR

b) Discuss applications of nanoparticles in Environment and medicine. (6)

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