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Reg. No. :

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Question Paper Code: 99953

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Elective

Chemical Engineering

19UCH953-INDUSTRIAL WASTE MANAGEMENT

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

- Which one of the following is the cause of industrial pollution? CO1- U
(a) Modern technologies (b) Efficient waste disposal
(c) Efficient government policies (d) Unplanned industrial growth
- Wastewater from different sources like bathrooms, kitchens and wash basins is called a CO1-U
(a) Sewage (b) Garbage (c) Sullage (d) Discharge
- How many gallons of wastewater is treated before being released into the natural water-bodies? CO2-App
(a) Millions (b) Billions (c) Trillions (d) Quadrillion
- Why is it difficult to recycle plastics? CO2- App
(a) It is very hard
(b) It comes in different sizes
(c) It is adhesive
(d) It contains different types of polymer resins
- How does a waste disposal method where solid organic wastes are converted to the residue and gaseous products through combustion? CO2- App
(a) Incarnation (b) Incineration (c) Incarceration (d) Incubation
- Identify that water is fit for drinking purposes is known as CO2- App
(a) Potable water (b) Sewage water (c) Seawater (d) Portable water
- Classify the example for a following is an example of adsorption? CO2 -App
(a) ammonia in contact with water (b) anhydrous CaCl₂ with water
(c) silica gel in contact with water vapors (d) all of these

8. The main sources of Arsenic in water are _____. CO1 -U
 (a) Floods (b) Fertilizers (c) Industrial waste (d) Both b and c
9. Identify a CO₂ can be easily liquified and even solidified because CO2 -App
 (a) It has a weak force of attraction
 (b) It has comparatively more force of attraction than other gases
 (c) It has more inter-molecular space
 (d) It is present in the atmosphere
10. When the organic matter present in the sanitary landfill decomposes, it generates CO1-U
 (a) Methane (b) Nitrogen (c) Hydrogen (d) All of the above

PART – B (5 x 2= 10 Marks)

11. What are the characteristics of industrial waste? CO1- U
12. Write the five basic principles of cleaner production with its classification. CO2-App
13. How effluent from textile industry is treated? CO2-App
14. Write the four types of neutralization CO2-App
15. Classify the four components of hazardous waste. CO2-App

PART – C (5 x 16= 80 Marks)

16. (a) Elaborate briefly about the Characteristics of industrial wastes. CO1 -U (16)
 Or
 (b) With a neat sketch briefly about the Trade effluent. CO1 -U (16)
17. (a) Describe briefly about the materials & process modification of cleaner production. CO2- App (16)
 Or
 (b) With a neat sketch, briefly explain the cleaner production and its classification. CO2- App (16)
18. (a) With a neat sketch, briefly explain the treatment used for waste from paper industries. CO2-App (16)
 Or
 (b) Mention briefly about the treatment used for waste from Thermal Power Plant. CO2-App (16)

19. (a) Mention briefly about the treatment of surface water. CO2-App (16)
Or
(b) Mention about the removal of solids in waste water treatment. CO2-App (16)
20. (a) Discuss about the hazardous waste management. CO1 -U (16)
Or
(b) Mention briefly about the combustion method. CO1 -U (16)