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Question Paper Code: U9974

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

Open Elective

Chemical Engineering

21UCH974-INDUSTRIAL WASTE MANAGEMENT

(Regulations 2021)

(Common to ALL branches)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

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
- What is the minimum excess amount of chlorine required to corrode equipment? CO1 -U
(a) 30mg/L (b) 40mg/L (c) 50mg/L (d) 60mg/L
- The burning of solid waste is not recommended because CO1 -U
(a) It is very costly (b) It requires a lot of space
(c) It requires modern technologies (d) It causes several environmental issues
- Which of the following gas is produced from landfill wastes? CO1 -U
(a) Biogas (b) Natural gas
(c) Liquified petroleum gas (d) All of the above
- Which of the following gases is responsible for an increase in global warming? CO1 -U
(a) Methane and CO₂ (b) Methane and CO
(c) Methane and O₃ (d) Methane and NO₂
- The gas responsible for acid rain is: CO1 -U
(a) NO₂ (b) CO₂ (c) SO₂ (d) CH₄

7. According to the Geological survey, water with less than 1000 ml/litre of total dissolved solids is a CO1 -U
- (a) Brine water (b) Freshwater
(c) Slightly saline (d) Moderately saline
8. The main sources of Arsenic in water are _____. CO1 -U
- (a) Floods (b) Fertilizers
(c) Industrial waste (d) Both b and c
9. After mining, the huge holes left behind are used for a CO1 -U
- (a) Wastewater storage (b) Waste and water storage
(c) Waste disposal (d) Waste storage
10. Sodium and chlorine are reacted, and as a result, sodium chloride is formed, which is also called table salt. What option gives the reactants and products of the reaction? CO1 -U
- (a) Reactants – sodium; products – chlorine
(b) Reactants – sodium and table salt; products – chlorine
(c) Reactants – tables salt; products – sodium and chlorine
(d) Reactants – sodium and chlorine; products – sodium chloride

PART – B (5 x 2= 10Marks)

11. What are the characteristics of industrial waste? CO1 -U
12. Write the five basic principles of cleaner production with its classification. CO1 -U
13. Which industry is a major industry source of air pollution? CO1 -U
14. Classify the four types of neutralization. CO1 -U
15. List two methods used for the treatment of hazardous waste. CO1 -U

PART – C (5 x 16= 80Marks)

16. (a) Explain briefly about the industrial pollution. CO1 Ana (16)
Or
(b) Describe the types of industries. CO1 Ana (16)
17. (a) Explain briefly about the waste management approach CO2 Ana (16)
Or
(b) Explain briefly about the volume & strength reduction of cleaner production. CO2 Ana (16)
18. (a) Explain briefly about the wastewater treated in the dairy industry. CO3 Ana (16)
Or
(b) Explain briefly about the wastewaters from fertilizer Industry. CO3 Ana (16)

19. (a) Explain briefly about the adsorption treatment method. CO4 Ana (16)
Or
(b) Explain briefly about the treatment of industrial & municipal waste. CO4 Ana (16)
20. (a) Explain briefly about the physico-chemical treatment. CO5 U (16)
Or
(b) Explain briefly about the incineration. CO5 U (16)

