REV-01
MSC/02/05

2023/08

SET A

M.Sc. CHEMISTRY
THIRD SEMESTER
ENVIRONMENTAL POLLUTION & MANAGEMENT
MSC - 306A [SPECIAL REPEAT]

[USE OMR FOR OBJECTIVE PART]

Duration : 3 hrs. **Full Marks : 70**

(Objective)

Time : 30 min. **Marks : 20**

Choose the correct answer from the following: ***1X20=20***

1. Nitrification is important in nature, because
   a. Plants absorb nitrogen in the form of ammonium salts
   b. Plants absorb nitrogen in the form of nitrate
   c. Both a and b
   d. None of these

2. The hazardous chemical can enter the human body through which of the following routes
   a. Ingestion
   b. Inhalation
   c. Eye contact
   d. All the above

3. What does PPE stand for?
   a. Professional Personal Equipmement
   b. Protective Practical Equipment
   c. Personal Protective Equipment
   d. Properly Protected Employee

4. Nylon threads are made of
   a. Polyester polymer
   b. Polyamide polymer
   c. Polyethylene polymer
   d. Polyvinyl polymer

5. This sign represents

   a. Corrosion
   b. Flammable
   c. Toxic
   d. Explosive

6. What is the main purpose of hazard identification?
   a. To minimise the effect of a consequence
   b. For better risk management
   c. To characterize adverse effect of toxins
   d. To reduce probability of occurrence

7. Denitrification step involves
   a. Reduction of nitrate to nitrogen gas
   b. Reduction of ammonia to nitrogen gas
   c. Oxidation of nitrogen gas to ammonia
   d. None of the above

8. The fundamental objectives of waste processing is
   a. Refuse
   b. Reuse
   c. Reduce
   d. All of the above

9. Disinfection of water can be done by
   a. Chlorination
   b. UV-light radiation
   c. Ozonation
   d. All of the above

10. The cycles of nature involve
   a. Flow of matter
   b. Flow of energy
   c. Both a and b
   d. None of the above

11. What is called for the mixture of all the contents of soil?
   a. Erosion
   b. Sublimation
   c. Degradation
   d. Loams

12. Why area treatment is important for soil?
   a. To reduces the impact of raindrops on the soil
   b. To maximize surface run-off
   c. Not treating the upper catchment and proceeds towards an outlet
   d. Not storing surplus rainwater

13. What is called for the movement of surface litter and topsoil from one place to another?
   a. Soil submerge
   b. Soil degradation
   c. Soil erosion
   d. Soil pollution

14. Organic agriculture advocates avoiding the use of_____
   a. Organic manure
   b. Stored water
   c. Modern technologies in harvesting
   d. Chemical fertilizers

15. How many horizons are there in soils?
   a. One
   b. Two
   c. Three
   d. Four

16. Which of the following particles is called the particulate pollutants?
   a. Ozone
   b. Radon
   c. Fly Ash
   d. Ethylene

17. Which of the following components is responsible for acid rain?
   a. Sulphur
   b. Carbon dioxide
   c. Sulphur dioxide
   d. Nitrogen dioxide

18. The WHO provisional guideline value of fluoride in drinking water is
   a. 1.5 mg/L
   b. 2.5 mg/L
   c. 10 g/L
   d. 15 g/L

19. Eutrophication of water bodies leading to killing of fishes is mainly due to non-availability of
    a. Food
    b. light
    c. Oxygen
    d. Essential minerals

20. Which element is responsible for Eutrophication?
    a. Nitrogen
    b. phosphorus
    c. Both a and b
    d. None of the above

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Descriptive

Time : 2 hrs. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a. Explain the mechanism of petroleum hydrocarbon degradation. What are the factors that influence petroleum hydrocarbon degradation? 5

   b. What is meant by Industrial waste? What are the different types of industrial waste? Explain briefly. 5

2. a. What do you mean by wastewater treatment? What are the roles of atmosphere? 1+3=4

   b. What are the main cycles of nature? Show key steps of nitrogen cycle with proper diagram. 6

3. a. What are the key steps involved in carbon cycle? Show with proper diagram. 5

   b. Classify solid wastes based on their sources of origin and on their physical nature. What do you mean by solid waste management? What are the methods for treatment of solid waste? 2+1+2 =5

4. a. Write short notes on (i) Detergents (ii) Dye. 2+2=4

   b. What do you mean by synthetic polymers? Write three different types of synthetic polymers and their uses. 6

5. a. How can we prevent soil pollution? Explain. 5+5=10

   b. What are the Negative Consequences of Soil Pollution? Explain.

6. a. Define soil pollution. What are the main sources of soil pollution? 5+5=10

   b. How does soil pollution affect soil productivity? Explain.

7. a. What is Eutrophication? What are the ecological Effects of Eutrophication? 3+3+4 =10

   b. What are the main reasons of ground water pollution?

   c. Write the toxic effects of arsenic and fluoride contaminated ground water. What are the remedies?

8. a. What is acid rain. Write the mechanism of formation of acid rain. 3+4+3 =10

   b. Write the causes of lead pollution. What are the harmful effects of nitrogen dioxide.

   c. Write a short note on Ozone layer depletion.

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