M.Sc. ENVIRONMENTAL Sc.
FIRST SEMESTER
ENVIRONMENTAL CHEMISTRY
MEV – 102 [SPECIAL REPEAT]
[USE OMR FOR OBJECTIVE PART]

SET A

Duration: 3 hrs.

Full Marks: 70

(**Objective**)

Time: 30 min.

Marks: 20

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

1. Depletion of the ozone layer is caused due to
   a. Freons
   b. Ferrocene
   c. Fullerenes
   d. All of above

2. The compound which is essential for photosynthesis process has __ element
   a. Mg
   b. C
   c. Fe
   d. All of above

3. Choose the correct statement
   a. Clean rain has a natural acidity of about 5.6
   b. Ozone is a stronger oxidant than PAN
   c. Arsenic is a major problem in surface water of Assam
   d. All are correct

4. Alum's capacity to purify water is due to
   a. softens hard water
   b. pathogenic bacteria get destroyed
   c. impurities' coagulation
   d. It improves taste

5. Which of the following plays a role in the formation of tropospheric ozone?
   a. Infrared radiation
   b. VOC
   c. CO_2
   d. N_2O

6. Which of the following parameters is not a good indicator of contamination in ground water?
   a. BOD
   b. Nitrates
   c. Silica
   d. Chlorides

7. Dobson unit is a measure of
   a. PAN
   b. CFC
   c. Ozone
   d. All of above

8. Enthalpy of exothermic reaction is
   a. zero
   b. Always negative
   c. Always positive
   d. May be positive or negative

9. Bad ozone may be present in
   a. Troposphere
   b. Atmosphere
   c. Stratosphere
   d. Thermosphere

[1]

10. Indicator used in measurement of hardness is
    a. EDTA
    b. Methyl orange
    c. EBT
    d. All of above

11. ------ Oxygen end of one water molecule is attracted to ----- Hydrogen end of another water molecule (Fill in the blanks)
    a. Negative, positive
    b. Positive, negative
    c. Negative, negative
    d. Positive, positive

12. Insects can walk on water due to ….. of water
    a. Capillary
    b. Surface tension
    c. Viscosity
    d. Adhesion

13. High BOD and low DO in water indicate
    a. Water pollution
    b. Good water quality
    c. Biodiversity
    d. Both (b) and (c)

14. Beer-Lambert law defines
    a. The degree of absorption of monochromatic light by a medium
    b. Atomic absorption spectrophotometry
    c. Both of above
    d. None of above

15. Find the incorrect statement
    a. BOD value of clean water is less than 5 ppm
    b. Drinking water pH should be between 6- 8.5
    c. carbon, sulphur and nitrogen oxides are the most widespread air pollutants
    d. dissolved oxygen concentration below 5 ppm is ideal for the growth of fish

16. Plant condition where an essential nutrient is excessively available
    a. Deficiency
    b. Toxicity
    c. Efficiency
    d. Macro nutrients

17. Movement of soil constituents (organic or mineral) within the profile and/or between horizons
    a. Addition
    b. Losses
    c. Transformation
    d. Translocation

18. For the life on earth, which of the following is the most harmful?
    a. Deforestation
    b. Increasing desert
    c. Soil erosion
    d. Nuclear fallout

19. The dry weight of soil in a given volume is known as
    a. Moisture content
    b. Water Holding Capacity
    c. Field Capacity
    d. Bulk Density

20. DDT is
    a. Nitrogen containing pesticide
    b. Biodegradable pesticide
    c. Non-biodegradable pollutant
    d. None of above

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(__Descriptive__)

Time : 2 hrs. 30 min.

Marks : 50

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

1. Write the physical and chemical properties of water.   10

2. Write the principles of Green Chemistry.   10

3. What is acid deposition? Write causes, impacts and remedial measures.   2+8=10

4. Write short notes on: 3+3+4 =10
    a. Atomic Absorption Spectrophotometry
    b. PAN
    c. Cleaning action of soaps

5. Write about composition and reactions in the lower and upper atmosphere.   5+5=10

6. Differentiate between: 2.5×4=10
    a. Order and Molecularity
    b. Extensive properties and Intensive properties
    c. Acids and Bases
    d. Photochemical smog and Classical smog

7. Define soil water. Describe the different types of soil water with diagrammatic representation.   2+8=10

8. Define soil horizons and soil Profile. Describe the factors and process of development of soil   2+8=10

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