

Roll No.

E-991**M. Sc. (Fourth Semester) (Main/ATKT)****EXAMINATION, May-June, 2021**

CHEMISTRY

Paper Fourth (CH-22)

(Environmental and Applied Chemical Analysis)*Time : Three Hours]**[Maximum Marks : 80***Note :** Attempt all Sections as directed.**Section—A**

1 each

(Objective/Multiple Choice Questions)**Note :** Attempt all questions.

Choose the correct answer :

- Which vitamin deficiency disease may be found in severe alcoholism ?
 - Beri-Beri
 - Rickets
 - Pellagra
 - Xerophthalmia

- Which of the following statements is true about the air quality index ?
 - It indicates the colour of the air.
 - It predicts ozone levels in your area.
 - It determines intensity of sound and sound pollution.
 - It estimates air pollution mainly sulphur content in the air.
- What is the main ingredient in face powder ?
 - Calcium carbonate
 - Talc
 - Magnesium carbonate
 - China clay
- What is the total percentage of nitrogen gas in the air ?
 - 12 percent
 - 21 percent
 - 78 percent
 - None of the above
- The amount of protein per 100 g of red meat is between :
 - 5-10 g
 - 15-25 g
 - 30-40 g
 - 45-60 g
- A candlelight test is used to measure of an egg by incubator maintainers.
 - External shell quality
 - Internal egg quality
 - Colour of egg
 - None of the above

P. T. O.

7. Which of the following is not a solid form of aerosol ?
- (a) Fume
 - (b) Dust
 - (c) Mist
 - (d) Smoke
8. The maximum size of fly ash is
- (a) 1 μm
 - (b) 100 μm
 - (c) 1000 μm
 - (d) 10 μm
9. Lithium concentrations in body fluids is determined by :
- (a) gravimetrically
 - (b) photometrically
 - (c) volumetrically
 - (d) complexometrically
10. Which of the following salts is the main cause of permanent hardness of water ?
- (a) Magnesium sulphate
 - (b) Magnesium bicarbonate
 - (c) Magnesium carbonate
 - (d) None of the above
11. Chlorofluorocarbon is non-flammable chemicals mainly used in
- (a) Perfumes
 - (b) Refrigerators
 - (c) Air conditioners
 - (d) All of the above

P. T. O.

12. What is the health effect of excess fluoride in drinking water ?
- (a) Fluorosis
 - (b) Toothaches
 - (c) Lung disease
 - (d) Intestinal infection
13. The main sources of Arsenic in water are
- (a) Floods
 - (b) Fertilizers
 - (c) Industrial waste
 - (d) Both (b) and (c)
14. Coffee is prepared from coffee beans by leaching with :
- (a) Cold water
 - (b) Hot water
 - (c) Dilute hot caustic solution
 - (d) Naphtha
15. Which of the following units is used for measuring the turbidity of water ?
- (a) FAU-Formazin Attenuation Units
 - (b) FNU-Formazin Nephelometric Unit
 - (c) NUT-Nephelometric Turbidity Units
 - (d) All of the above

[5]

E-991

16. The chemicals released due to unsustainable agricultural practises and cause soil pollution are :

- (a) Pathogens
- (b) Chemical fertilizers
- (c) Strontium-90
- (d) Weedicides

17. Which of the following statements is true about proteins ?

- (a) Proteins are polymers of glucose.
- (b) Proteins are polymers of amino acids.
- (c) Proteins are polymers of peptide bonds.
- (d) Proteins are polymers of disulfide bridges.

18. Benzene and methylbenzene the major soil pollutants mostly from the petroleum industries are :

- (a) Heavy organic pollutants
- (b) Inorganic pollutants
- (c) Carcinogenic pollutants
- (d) None of the above

19. Antioxidant BHA stands for :

- (a) Butyl Hydroxyl Amine
- (b) Boron Hydroxyl Amine
- (c) Butylated Hydroxy Anisole
- (d) None of the above

P. T. O.

[6]

E-991

20. Sodium benzoate is used in food as :

- (a) Preservative
- (b) Colouring agents
- (c) Fragrance
- (d) Nutrient

Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions in 2-3 sentences.

1. Differentiate pollutant and pollution.
2. Why the white marbles of Taj Mahal becoming yellowish day by day ?
3. What are the sources of soil pollution ?
4. What is the role of bath salt in bath preparation ?
5. Define antioxidant.
6. Write the function of lipase.
7. How are butter and cheese prepared ?
8. Write the names of analytical techniques used for determination of trace elements from biological samples.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions. Write answer in < 75 words.

1. What are the do's and don'ts to save the environment ? Write at least 3-3 points for each.
2. What are the effects of photochemical smog ? How can photochemical smog be controlled ?
3. List the green house gases. How is it causing global warming ?

[7]

E-991

4. Discuss the self-purification of river water.
5. What is the purpose of introduction of food additives in food and why do we need to analyze the constituents of food materials ?
6. Comparatively explain the beauty of bathing with respect to applying cosmetics.
7. Write the composition of cold creams. Also provide the function of each component.
8. Describe the method for analysis of protein albumin.

Section—D

5 each

(Long Answer Type Questions)

Note : Attempt all questions.

1. (a) Define BOD. What does it signifies ?
(b) How is it determined ?

Or

Shortly describe :

- (a) The major water pollutants with their sources.
(b) Preventive measure to control water pollution.
2. (a) In which part of the atmosphere ozone layer is found ?
(b) How is ozone layer formed in nature ? Provide suitable reaction.
(c) Discuss the ozone depletion with reactions of ozone with different depleting agents.

P. T. O.

[8]

E-991

Or

Write short notes on the following :

- (a) Scrubber technique
(b) Baghouse filters
3. (a) Explain the importance of additives and preservatives in food samples.
(b) Describe any *one* technique to check purity of honey.

Or

Briefly describe the standard composition and analysis of :

- (a) Milk powder
(b) Jam
4. What do you mean by cosmetics ? What does it signifies in the society ? Write the composition of saving cream with the function of each component.

Or

Write the principle and procedure for determination of :

- (a) Glucose in urine sample
(b) Enzyme amylase

E-991