

Roll No.

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**M.Sc. (Fourth Semester)
EXAMINATION, May-June, 2022
CHEMISTRY**

**Paper Fourth (CH-22)
(Environmental and Applied Chemical Analysis)**

Time : Three Hours]

[Maximum Marks:80

Note : Attempt all sections as directed in the each sections.

SECTION-A

(Objective/Multiple Choice Questions)

Note : Solve all questions. There are four answers in each questions. Select one appropriate answer.

(1 Mark Each)

1. All are particulate pollutions except-

- (A) Smoke
- (B) Dust
- (C) Ozone
- (D) Soot

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2. If released or formed in the atmosphere, each are the following will least likely results in long term environmental damage to an ecosystem.
 - (A) Mercury
 - (B) Carbon dioxide
 - (C) Lead
 - (D) Ozone
3. What is air quality index
 - (A) It tell about the sound pollution.
 - (B) It measure air pollution mainly Sulphur contest in the air.
 - (C) It measure ozone layer in your area
 - (D) It checks the colour of air.
4. Which is the largest sources for production of Nitrous oxide.
 - (A) Chemical industry
 - (B) Fertilizer industry
 - (C) Fossil fuel combustion
 - (D) Bacterial action
5. The true statement about the green house effect is that it is-
 - (A) It is caused by combination of many gases
 - (B) Caused by CO_2
 - (C) Caused only by, CO_2 , CFC, CH_4 & NO_2 gases
 - (D) None of these

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6. Which of the following techniques are used for reducing total dissolved solids (Tds) in the water.
- (A) osmosis
 - (B) ion exchange
 - (C) Distillation
 - (D) Both B & C
7. Which of the following statements is true for the composition of CaCO_3 in soft water
- (A) 6-30 milligrams of CaCO_3 /liter
 - (B) 30-60 milligrams of CaCO_3 /liter
 - (C) 60-90 milligrams of CaCO_3 /liter
 - (D) 90-120 milligrams of CaCO_3 /liter
8. In most fresh water lakes, the algal productivity is limited by the availability of which of the following inorganic ions.
- (A) Carbon
 - (B) Nitrogen
 - (C) Phosphorus
 - (D) All of the above
9. What is soil profile?
- (A) A cross section view of the horizons in a soil.
 - (B) A front view of the horizons in a soil
 - (C) A cross section view of the horizons in a rock.
 - (D) A front view of the horizons in a rock

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10. Which fertilizer produce acidity in soil?
- (A) Sodium nitrate
 - (B) Calcium ammonium nitrate
 - (C) Ammonium Sulphate
 - (D) Calcium nitrate
11. Which of the following is used as sparkling agent in Carbonated beverages.
- (A) Sodium benzoate
 - (B) Sparkling Colourant
 - (C) Sugar
 - (D) CO_2
12. Which of the following statements describes the characteristics of good jelly.
- (A) Should be cut easily
 - (B) Retain shape of edge and show clear cut surface.
 - (C) Tender enough to quiver.
 - (D) All of the above.
13. Storage of food under reduced pressure is called.
- (A) Aseptic packaging
 - (B) Hyperbaric storage
 - (C) Hypobaric storage
 - (D) Gas packaging

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14. Pasteurisation is the process of heating milk.

- (A) above 1210°C
- (B) above boiling point
- (C) below boiling point
- (D) above 1500°C

15. Why are adulterants added?

- (A) To increase shelf life of products. eg. urea
- (B) To improve flavour colour and appearance
- (C) To Sell lesser quality at the same price
- (D) All the mentioned

16. What is the main ingredient in face-powder

- (A) Calcium carbonate
- (B) Talc
- (C) Magnesium Carbonate
- (D) China clay

17. The soap used in shaving cream are-

- (A) Calcium soaps.
- (B) Lead soaps
- (C) hard soaps
- (D) soft soaps

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18. Which of the following statements are 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 disulphate bonds.

19. The blood platelets count in healthy human blood is approximately

- (A) 2,50,000 - 5,00,000/CC of blood
- (B) 2,00,000 - 4,00,000/CC of blood
- (C) 1,50,000 - 2,50,000/CC of blood
- (D) 1,00,000 - 2,00,000/CC of blood

20. An antigen is a

- (A) large molecule of amino acid
- (B) Large molecule of protein
- (C) Small molecule of amino acid
- (D) Small molecule of protein.

Section -B

(Very Short Answer type Questions)

(2 Marks Each)

Note: Attempt all questions in 2-3 sentence.

1. What are the sources of SO₂ in the atmosphere?
2. What is temperature in the atmosphere?

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3. What is dissolved oxygen water?
4. What do you mean by soil moisture?
5. Why is food analysis important?
6. What do you understand by crude protein?
7. Is there any method to detect mercury in cosmetics except AAS?
8. Define blood area nitrogen?

Section- C

(Short Answer Types Questions)

(3 Marks Each)

Note- Attempt all questions- Write answer in about 75 words.

1. What is acid rain? How is it caused? What are its bad effects on the mud.
2. What is the chemistry of photo chemical smog?
3. What are the objectives and parameters of water pollutions?
4. Write short notes on municipal waste composition?
5. What are proximate constituents of food materials?
6. What are the chemical compositions of soft drinks and alcoholic beverages?
7. What is creatinine? What is its normal range in the human body?
8. What are perfumes? What are its main chemical composition?

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SECTION – D

(Long Answer Types Questions)

(5 Marks Each)

Note : Attempt all questions. Write answers of each questions in about-200 words.

1. How are you classify air pollutants. Describe the air quality standards for SO_2 , NO_x , and CO.

OR

Name the pollutants responsible for acid rain. What are its deleterious effect on material and terrestrial systems.

2. Discuss the effects of discharge of domestic sewage into water an aquatic biota and marine organism.

OR

Write notes on the following

- (i) Biodegradation of pesticides
 - (ii) Geochemical impact municipal solid waste.
3. How do you analyze the following? Discuss the method of analysis-
 - (i) Cheese
 - (ii) Ice-Cream

OR

Discuss the antioxidant source of food and explain their importance.

4. What are cosmetics? Discuss in brief the different kinds of cosmetic used and their adverse effects on human body.

OR

Highlight main chemical used in savings preparation and creams and face powder?