18ZOU11

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2022
(Third Semester)

Branch –**ZOOLOGY**

CHEMISTRY-I

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. The shape of S orbital is _____.
   i) Dumbbell (ii) Spherical (iii) Cloverleaf (iv) No definite shape

2. -[-CF_2.CF_2-] – is the repeating unit of _____.
   i) Teflon (ii) Polyethylene (ii) Polycarbonate (iv) Terylene

3. Identify the compound used in TLC as stationary phase.
   i) MnO_2 (ii) CaO (iii) Na_2O (iv). Al_2O_3

4. $CH_3COOC_2H_5 + H_2O + H^+ \rightarrow C_2H_5OH + CH_3COOH$
   The above reaction is an example of _____ order reaction
   i) Second (ii). First (iii) Pesudo first (iv) Zero

5. Which one of the following air pollutant affects haemoglobin of blood?
   i) NO_2 (ii). NO (iii). CO_2 (iv). CO

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a. State the following.
   i. Pauli's Exclusion principle ii. Hund's rule

   OR

   b. Define the electronic concept of oxidation and reduction giving two examples each.

7. a. Write the preparation, properties and uses of nicotine.

   OR

   b. How will you prepare terylene? Give its applications.

8. a. How is an organic compound purified by steam distillation method? Explain with a neat diagram.

   OR

   b. Write notes on fractional crystallisation method.

9. a. Derive the rate constant for a first order reaction.

   OR

   b. What are the characteristics of a catalytic reaction?

Cont...

10. a. How is acid rain formed? What are its harmful effects?

OR

b. List out the factors that affect soil and explain the harmful effects of pesticides.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. a. State and explain the following acid base theories with suitable examples. (3x2)
i. Lewis theory ii. Arrhenius theory iii. Bronsted –Lowry theory

OR

b. i. Calculate the oxidation number of manganese in potassium permanganate and chromium in potassium dichromate. (1+1)
ii. List out the postulates of VSEPR theory. (4)

12. a. i. State Huckel's rule. (2)
ii. Write the preparation, properties and uses of benzene. (4)

OR

b. i. What is isoprene rule? (2)
ii. How is camphor isolated? (4)

13. a. i. Define the following concentration terms with formula. (3x1)
a. Normality b. Molarity c. Molality
ii. Explain sublimation method with an example. (3)

OR

b. Explain the principle, working and applications of ion-exchange chromatography.

14. a. Define the following with suitable examples. (3x2)
i. Complex reactions ii. Consecutive reactions iii. Parallel reactions

OR

b. Write notes on the following. (3x2)
i. Catalytic poisoning ii. Enzyme catalysis iii. Promoters

15. a. Classify pollutants. What are the sources, harmful effects and control measures of water pollution?

OR

b. Write notes on the following.
i. Eutrophication (3) ii. Effects of food contaminants (3)

Z-Z-Z END