

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(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 According to Lewis concept an acid is _____ acceptor
(i) proton (ii) base
(iii) electron (iv) electron pair
- 2 Which of the following is a fully fluorinated polymer?
(i) Teflon (ii) Nylon
(iii) PVC (iv) PVA
- 3 Normality of a solution is the number of _____ of solute per litre of the solution.
(i) moles (ii) equivalents
(iii) formula weight (iv) mole fraction
- 4 For first-order reactions the rate constant, k, has the unit(s)
(i) $l\ mol^{-1}$ (ii) $time^{-1}$
(iii) $(mol/l)^{-1}\ time^{-1}$ (iv) $time\ mol\ l^{-1}$
- 5 Which causes water pollution?
(i) Jet planes (ii) Herbicides
(iii) Smoke (iv) Combustion of fossils

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a) Bring out the differences between orbit and orbitals.
OR
b) Calculate the oxidation number of hydrogen in H_2O_2 and CaH_2 .
- 7 a) State: Huckel rule. Give an example for aromatic and non-aromatic compound.
OR
b) Explain the isolation and uses of menthol.
- 8 a) Define: Mole fraction, volume percentage and mass percentage.
OR
b) How do you purify the organic solid using crystallization method?
- 9 a) Show an example auto catalyst and negative catalyst.
OR
b) Explain reversible reaction with suitable example.
- 10 a) Classify pollutants.
OR
b) Define: DO, BOD and COD.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a) Point out the use of Hund's rule and Pauli exclusion principle for filling of electrons in orbital.
- OR
- b) Distinguish between i) Oxidizing agent and reducing agent
ii) Lowry-Bronsted and Lewis acids and bases
- 12 a) Discuss the preparation, properties and uses of nicotine
- OR
- b) Outline the preparation, properties and uses of polyethylene.
- 13 a) Discuss the principle of fractional distillation of miscible liquid pairs and describe the use of fractionating column in this connection.
- OR
- b) Enumerate the principle and applications of column chromatography.
- 14 a) Derive integral rate equation for first order reaction.
- OR
- b) Highlight the characteristics of enzyme reactions.
- 15 a) Analyze the source soil pollution. What are the factors affecting soil pollution?
- OR
- b) Discuss the process of primary and secondary water treatment.

Z-Z-Z

END