

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2023
(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)

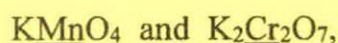
- 1 Two electrons occupying the same orbital have different _____.
(i) principal quantum number (ii) azimuthal quantum number
(iii) magnetic quantum number (iv) spin quantum number
- 2 Citral is a -----
(i) Monoterpene (ii) Sesquiterpenes
(iii) Diterpenes (iv) Triperpenes
- 3 In which type of chromatography, the stationary phase is held in a narrow tube and the mobile phase is forced through it under pressure?
(i) Column chromatography (ii) Planar chromatography
(iii) Liquid chromatography (iv) Gas chromatography
- 4 A promoter is a substance which
(i) lowers the kinetic energy of reactants
(ii) lowers the activation energy of reaction
(iii) enhances the activity of the catalyst
(iv) enhances the concentration of the catalyst
- 5 Cause of eutrophication is
(i) Nutrient enrichment of water bodies
(ii) Increase of oxygen in water bodies
(iii) Increase in number of aquatic organisms
(iv) All of these

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. a) Explain Pauli exclusion principle.
OR
b) Calculate the oxidation number of underlined metal.



Cont...

7. a) Outline the preparation and uses of Teflon.
OR
b) Write a preparation method for citral and geraniol.
8. a) Bring out the differences between normality, molarity and molality.
OR
b) How do you purify the organic solid using sublimation method?
9. a) What is pseudo first order reaction? Give an example.
OR
b) Show an example for auto catalyst and catalyst poisoning.
10. a) Analyze the health effects of pesticides.
OR
b) Point out the sources of soil pollution.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a) Analyze shapes of s, p and d orbitals.
OR
b) Compare Lowry-Bronsted and Lewis theory of acids and bases. In what way Lewis acid differs from Bronsted acid?
- 12 a) Outline the preparation and two chemical reactions of benzene.
OR
b) Discuss the preparation, properties and uses of piperine .
- 13 a) Compare principle and under what conditions following distillation used
i) Steam distillation ii) Fractional distillation
iii) Distillation under reduced pressure
OR
b) Elaborate the principle and applications of ion-exchange chromatography.
- 14 a) Compare i) Order and molecularity ii) Consecutive and parallel reactions.
OR
b) Elucidate the mechanism of enzyme catalysis.
- 15 a) Summarize the nature of inorganic and organic pollutant causing water pollution.
OR
b) Analyze the effects of i) Acid rain ii) Global warming