

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)
Branch - **ZOOLOGY**
CHEMISTRY- I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	All cations and molecules that are short of an electron pair act as _____ a) Lewis acids b) Lewis bases c) Bronsted acid d) Bronsted bases	K1	CO1
	2	Oxidation number of 'Mn' in KMnO ₄ ? a) +1 b) +3 c) +5 d) +7	K2	CO1
2	3	Identify the alkaloids among the following: a) Geraniol b) Citral c) Menthol d) Nicotine	K1	CO2
	4	The monomer used for preparation of teflon is a) Tetrafluoroethylene b) Trichloroethylene c) Tetrachloroethylene d) Tetrabromoethylene	K2	CO2
3	5	Which separation method is used for separating acetone and water? a) Fractional distillation b) Vacuum Distillation c) Steam Distillation d) Solvent extraction	K1	CO3
	6	Normality of a solution is the number of _____ of solute per litre of the solution. a) Moles b) Equivalents c) Formula weight d) Mole fraction	K2	CO3
4	7	Enzymes are a) Finely divided metals b) Transition metal ions c) Auto-catalysts d) Proteins	K1	CO4
	8	The decomposition of nitroglycerine is an example of a) Negative catalytic reaction b) Enzyme catalysed reaction c) Autocatalytic reaction d) Induced catalysis	K2	CO4
5	9	Which causes water pollution? a) Jet planes b) Herbicides c) Smoke d) Combustion of fossils	K1	CO5
	10	Cause of eutrophication is a) Nutrient enrichment of water bodies b) Increase of oxygen in water bodies c) Increase in number of aquatic organisms d) All of these	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Build the shapes of s, p and d orbitals with neat diagram.	K3	CO1
	(OR)			
	11.b.	Develop the concept of Lowry-Bronsted and Lewis theory of acids and bases.		
2	12.a.	How are the following polymers prepared? i) Polyethylene ii) Teflon iii) Terylene	K4	CO2
	(OR)			
	12.b.	Examine the uses of following terpenoids. i) Geraniol (1.5 Marks) ii) Citral (1.5 Marks) iii) Menthol (2 Marks) iv) Camphor (2 Marks)		
3	13.a.	Make use of following methods for the purification of organic samples i) Crystallization (3.5 Marks) ii) Sublimation (3.5 Marks)	K3	CO3
	(OR)			
	13.b.	Identify the applications of paper and column chromatography. (3.5+3.5 Marks)		
4	14.a.	Interpret the characteristics of catalytic reactions.	K2	CO4
	(OR)			
	14.b.	Outline the mechanism of enzyme catalysis.		
5	15.a.	Criticize the effect of acid rain.	K5	CO5
	(OR)			
	15.b.	Explain the sources of air and water pollution.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Develop the importance of following concept i) Pauli's exclusion principle (3 Marks) ii) Aufbau principle (3 Marks) iii) Hund's rule (4 Marks)	K3	CO1
2	17	Interpret one preparation and four chemical properties of benzene (2+8 Marks)	K4	CO2
3	18	Inspect the principle, procedure and applications of ion-exchange chromatography (2+5+3 Marks)	K4	CO3
4	19	Show the derivation steps of integral rate equation for first order reaction	K2	CO4
5	20	Explain the various stages of water treatment.	K5	CO5