PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2025
(Fourth Semester)

Branch - CHEMISTRY

GENERAL CHEMISTRY -IV

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	What is the number of atoms in the unit cell of body centered cube? a) 2 b) 1 c) 4 d) 6	K1	CO1
	2	The total elements of symmetry in a cube are a) 23 b) 14 c) 4 d) 6	K2	CO1
2	3	An aldehyde on reaction with primary amine forms a) Ketone b) Schiff's base c) aromatic acid d) Carboxylic acid	K1	CO2
	4	Which of the following methods is not useful for synthesis or separation of amines? a)Heisenberg method b) Hoffmann method c) Wurtz reaction d) Curtius reaction	K2	CO2
3	5	Optical activity is shown by molecules which a)Contains at least 3 asymmetric centers b)is asymmetric or dissymmetric as a whole c) has plane of symmetry d) has center or symmetry	K1	CO3
	6	Which of the following is optically active? a) Methane b) Ethane c) Propare d) Glucose	K2	CO3
4	7	Which process involves the uptake of substance throughout the bulk of another substance a) Adsorption b) Absorption c) Desorption d) Sorption	K1	CO4
	8	How does a catalyst increase the rate of the reaction? a) By forming an intermediate complex b) By increasing activation energy c) By lowering activation energy d) None of the above	K2	CO4
5	9	The ignition characteristics of diesel are expressed in terms of a) Octane number b) Cetane number c) Viscosity d) Flash and fire point	K1	CO5
	10	Which of the following is a primary gaseous fuel? a) Water gas b) Oil gas c) Natural gas d) Liquified petroleum gas	K2	CO5

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.	Differentiate Amorphous and Crystalline solids.	K4	CO1
		(OR)		
	11.b.	Derive Bragg's Equation.		
2	12.a.	Discuss the reduction of nitrobenzene in various medium.	K2	CO2
		(OR)		
	12.b.	Describe the preparation of nitromethane and diazomethane.		
3	13.a.	Explain the terms enantiomers and diastereomers with examples.	K4	CO3
		(OR)		
	13.b.	Interpret the concept of Walden inversion and retention.		
4	14.a.	Explain Langmuir theory of adsorption.	K3	CO4
		(OR)		
	14.b.	Give brief account on homogeneous and heterogeneous catalysis.		
5	15.a.	What are knocking and antiknock compounds?	K3	CO5
		(OR)		
	15.b.	How water gas is manufactured?		

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	Draw and explain the crystal structure of NaCl.	K4	CO1
2	17	How is mixture of Primary, Secondary and Tertiary amines separated? Explain in detail.	K4	CO2
3	18	Outline the optical activity of allenes, spirans and biphenyl systems.	K4	CO3
4	19	Derive Michelis-Menton equation.	K4	CO4
5	20	List out the advantages and disadvantages of liquid fuels.	K4	CO5

Z-Z-Z   END