

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2025
(Third Semester)**

Branch - **CHEMISTRY**

GENERAL CHEMISTRY - III

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Question No.	Question	K Level	CO
1	What is the structure of borazole? a) Triangular planar b) Tetrahedral c) Trigonal bipyramidal d) Hexagonal planar	K4	CO1
2	Which of the following is a property of per mono sulphuric acid? a) Strong reducing agent b) strong oxidizing agent c) weak acid d) strong acid	K4	CO1
3	The reaction that Acetophenone can undergo is _____ a) Electrophilic substitution b) Nucleophilic substitution c) Aldol condensation d) All of the above	K2	CO2
4	_____ is a derivative of Salicylic acid. a) Aspirin b) Acetaminophen c) Ibuprofen d) Naproxen	K2	CO2
5	What is the product of the reaction between an alkyl halide and a sodium alkoxide. a) Alkene b) Alkyne c) Ether d) Alkanol	K2	CO3
6	What is the mechanism of the reaction of geminal dihalides with water? a) SN ₁ reaction b) SN ₂ reaction c) E ₁ reaction d) Hydrolysis	K2	CO3
7	The entropy change (ΔS) for a reversible isothermal expansion of an ideal gas is, a) positive b) negative c) zero d) infinitive	K1	CO4
8	Which of the following is a characteristic of a spontaneous process? a) It is reversible b) It is irreversible c) it requires internal energy d) it occurs at constant temperature.	K1	CO4
9	What is the relationship between K _P and K _C ? a) K _P = K _C b) K _P = K _C .RTΔn c) K _C = K _P .RTΔn d)) K _P = - K _C	K2	CO5
10	_____ is an exception of third law of thermodynamics. a) Glasses b) Crystals c) Gases d) Liquids	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Explain electron acceptor behavior and electron deficiency of boron hydrides.	K4	CO1
	(OR)		
11.b.	Write the preparation, properties, uses and structure of interhalogen compounds.		

Cont...

12.a.	Discuss the preparation, properties and uses of acrolein.	K2	CO2
(OR)			
12.b.	Give any two methods of preparation of benzoic acid. Mention its properties and uses.	K2	CO3
13.a.	Explain the preparation, properties and uses of Chloroform.		
(OR)		K2	CO3
13.b.	How monohydric and dihydric phenols prepared?		
14.a.	State second law of thermodynamics.	K4	CO4
(OR)			
14.b.	Derive Gibb's – Helmholtz equation.	K4	CO5
15.a.	Explain Nernst heat theorem.		
(OR)		K4	CO5
15.b.	State and explain Lechleiter's principle and physical equilibria.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Question No.	Question	K Level	CO
16	Discuss the preparation, properties and structure of Silicones.	K4	CO1
17	Explain the preparation and properties of Phthalic acid.	K2	CO2
18	Differentiate between primary, secondary and tertiary phenol	K2	CO3
19	Sketch and explain Carnot's cycle.	K4	CO4
20	Derive Clausius – Clapeyron equation.	K4	CO5

Z-Z-Z

END