

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024

(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	Complex formation is more likely to be possible in _____ a)alkali metals b) alkaline metals c) boron family d) rare gases	K4	CO1
2	What are interhalogen compounds used as? a)Reducing agents b) Aqueous solvents c) to decrease reactivity d) Non-aqueous solvents	K4	CO1
3	Crotonaldehyde on reduction with hydrogen in the presence of Nickel gives a)Crotonic acid b) Butanoic acid c) n-butyl alcohol d)Succinic acid	K2	CO2
4	o - Xylene when oxidized in presence of V_2O_5 , the product formed is _____ a)Benzoic acid b) Phenyl acetic acid c) Phthalic acid d)Acetic acid	K2	CO2
5	Which of the following is an example of vicinal dihalide? a)Dichloro methane b)1,2-dichloro ethane c)Ethylidene chloride d) Allyl chloride	K2	CO3
6	Catalytic dehydrogenation of primary alcohol gives _____ a)ketone b) aldehyde c) alcohol d) ester	K2	CO3
7	Entropy change for an isothermal reversible process is a)zero b) positive c) negative d) infinity	K1	CO4
8	For a Spontaneous reactions a) ΔH is positive b) ΔS is negative c) ΔG is negative d) Temperature is zero	K1	CO4
9	Lechatlier principle is applicable to a)heterogeneous reaction b) homogeneous reaction c) irreversible reaction d) system in equilibrium	K2	CO5
10	Chemical potential is a)extensive property b) intensive property c)force which drives the chemical system to equilibrium d)both 'b' & 'c'.	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Explain bonding in diboranes.	K4	CO1
	(OR)		
11.b.	Discuss the preparation, properties and structure of silicones.		
12.a.	How benzaldehyde is prepared? Mention its properties and uses.	K2	CO2
	(OR)		
12.b.	Write any two methods of preparation and properties of salicylic acid.		
13.a.	Classify alkyl halides based on the number of halogen atoms.	K2	CO3
	(OR)		
13.b.	Explain the preparation of mono and dihydric phenols.		
14.a.	Sketch and explain Carnot's cycle.	K4	CO4
	(OR)		
14.b.	Discuss the entropy changes of an ideal gas with variation in pressure and temperature.		
15.a.	Derive Clapeyron – Clausius equation.	K4	CO5
	(OR)		
15.b.	State third law of thermodynamics and give its exceptions.		

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, structure and uses of borazole.	K4	CO1
17	Briefly explain the preparation of acetophenone and benzophenone.	K2	CO2
18	Differentiate between primary, secondary and tertiary alcohols.	K2	CO3
19	Derive Gibbs – Helmholtz equations.	K4	CO4
20	Give the relationship between K_P and K_C .	K4	CO5

Z-Z-Z END