

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Second Semester)

Branch – CHEMISTRY

GENERAL CHEMISTRY – II

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	The anomalous behavior of lithium is mainly due to (i) Low ionization energy (ii) Large atomic size (iii) High polarizing power and small size (iv) Low electronegativity	K1	CO2
	2	Noble gases are chemically inert because: (i) High density (ii) Completely filled valence shell (iii) Low boiling point (iv) Large size	K2	CO1
2	3	Which method is used for concentration of sulphide ores? (i) Leaching (ii) Froth flotation (iii) Calcination (iv) Zone refining	K1	CO2
	4	Which of the following is an example of aluminothermic reduction? (i) Extraction of Na (ii) Extraction of Fe (iii) Thermite reaction (iv) Electrolysis of Al_2O_3	K2	CO1
3	5	The relationship between heat capacities C_p and C_v for an ideal gas is: (i) $C_p + C_v = R$ (ii) $C_p - C_v = R$ (iii) $C_p/C_v = R$ (iv) $C_v - C_p = R$	K1	CO2
	6	Which one of the following is the path function? (i) Heat (ii) Internal energy (iii) Enthalpy (iv) Entropy	K2	CO1
4	7	Saytzeff rule predicts formation of: (i) Less substituted alkene (ii) More substituted alkene (iii) Alkane (iv) Alkyne	K1	CO2
	8	Markownikoff's rule applies to addition of: (i) HX to alkene (ii) H_2 to alkene (iii) X_2 to alkene (iv) O_3 to alkene	K2	CO1
5	9	According to Huckel's rule, aromatic compounds contain: (i) $4n \pi$ electrons (ii) $4n + 1 \pi$ electrons (iii) $4n + 2 \pi$ electrons (iv) $2n \pi$ electrons	K1	CO2
	10	Which one of the following compounds is non (i) Toluene (ii) Naphthalene (iii) Aniline (iv) Cyclohexane	K2	CO1

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.	Explain the diagonal relationship between lithium and magnesium.	K2	CO1
		(OR)		
	11.b.	Compare the properties of alkali metals and alkaline earth metals.		
2	12.a.	Describe with a neat diagram a. froth flotation method b. Electromagnetic separation for concentration of ores	K2	CO1
		(OR)		
	12.b.	Explain the following refining methods. a. Zone refining and van Arkel's process.		
3	13.a.	Explain Joule-Thomson coefficient and inversion temperature.	K3	CO3
		(OR)		
	13.b.	Explain Hess's law with an example.		
4	14.a.	Illustrate Markownikoff's and anti Markownikoff's addition of alkenes with examples.	K4	CO4
		(OR)		
	14.b.	Explain any four methods of preparation of alkynes.		
5	15.a.	Discuss the Huckel theory of aromaticity with examples.	K4	CO4
		(OR)		
	15.b.	Explain why nitro group is activating and o- and p-directing towards aromatic nucleophilic substitution		

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	What are Noble gases? Discuss their position in the periodic table. How are noble gases separated?	K2	CO1
2	17	Describe the occurrence, Extraction, metallurgy and uses of Titanium.	K2	CO1
3	18	State and explain the First Law of Thermodynamics. Derive expressions for work done during isothermal reversible expansion of an ideal gas.	K3	CO2
4	19	Elaborate the preparation methods and 1,2 and 1,4 addition reactions of Butadiene.	K4	CO3
5	20	Describe the mechanism of aromatic electrophilic substitution reactions of arenes such as nitration, sulphonation and halogenation reactions.	K4	CO3

Z-Z-Z

END