

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(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	Which one of the following pairs do not impart color to the flame? a) BeCl ₂ and SrCl ₂ b) BeCl ₂ and MgCl ₂ c) CaCl ₂ and MgCl ₂ d) BaCl ₂ and SrCl ₂	K1	CO1
	2	Which one of the following alkali metals is the most metallic? a) Li b) Na c) K d) Cs	K2	CO1
2	3	Which one of the following ores is best concentrated by froth – floatation method? a) Magnetite b) Galena c) Haematite d) Cassiterite	K1	CO2
	4	Identify the primary ore of tungsten. a) Wolframite b) Hematite c) Bauxite d) Magnetite	K2	CO2
3	5	Which of the following properties is not a function of state? a) concentration b) internal energy c) enthalpy d) entropy	K1	CO3
	6	In a chemical process, the amount of total heat change is same no matter by which method the change is brought about. This is statement of a) law of thermochemistry b) thermodynamic law c) Hess's law d) law of heat of reaction	K2	CO3
4	7	Markovnikov's addition of HBr is not applicable to a) Propene b) 1-butene c) 1-pentene d) 2-butene	K1	CO4
	8	Acetylene reacts with water in the presence of sulphuric acid and mercuric sulphate gives. a) Acetone b) Acetic acid c) Formaldehyde d) Acetaldehyde	K2	CO4
5	9	The electrophile which is considered to be the active agent in the sulphonation of benzene is a) SO b) SO ₂ c) SO ₃ d) SO ₄	K2	CO5
	10	Which of the following compounds violates Huckel's Rule for aromaticity? a) Benzene b) Cyclobutadiene c) Pyridine d) Naphthalene	K1	CO5

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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.	Compare alkali metals with alkaline earth metals in respect of the following i) Ionization potential ii) Size iii) Reducing properties.	K3	CO1
	(OR)			
	11.b.	Explain the diagonal relation between Li and Mg.		
2	12.a.	Discuss the extraction Mo from its chief ore.	K3	CO2
	(OR)			
	12.b.	Show the importance of following process in metallurgy i) Hydrometallurgy (3.5 Marks) ii) Electrometallurgy (3.5 Marks)		
3	13.a.	Identify the differences between open, closed and isolated systems. Give examples.	K4	CO3
	(OR)			
	13.b.	Illustrate the first law of thermodynamics. Give its mathematical statement and explain each term involved.		
4	14.a.	Interpret the Hofmann rule in elimination reaction.	K5	CO4
	(OR)			
	14.b.	Predict the product where addition of HBr to propene in presence and absence of peroxide.		
5	15.a.	Analyze mechanistic steps of nitration of benzene	K4	CO5
	(OR)			
	15.b.	Examine Huckel's rule and using this rule predict the aromaticity of benzene and naphthalene		

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	Outline the extraction of beryllium from its chief ore	K4	CO1
2	17	Elaborate the following purification processes i) Van Arkel process (5 Marks) ii) Zone refining method (5 Marks)	K4	CO2
3	18	Build the derivation of Kirchoff's equation when C_p values are i) independent on temperature (5 Marks) ii) dependent on temperature (5 Marks)	K5	CO3
4	19	Explain the following reactions of alkenes. i) Hydroboratin-oxidation (3.5 Marks) ii) Hydroxylation(3.5 Marks) iii) Ozonolysis (3 Marks)	K5	CO4
5	20	i) Examine molecular orbital structure of benzene (5 Marks) ii) Analyse : When halogen present in benzene is deactivating but o- and p- directing towards electrophilic substitution (5 Marks)	K4	CO5

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