

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - **PHYSICS**

CHEMISTRY – I

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 IUPAC name for the coordination compound $[\text{CuCl}_2(\text{CH}_3\text{NH}_2)_2]$ is a) dichlorobis (dimethylamine) copper (II) b) dichlorobis (methylamine) copper (II) c) dimethylamine copper (II) chloride d) bis (dimethylamine) copper (II) chloride	K1	CO1
	2	Which of the following molecules geometry is true? a) XeF_2 – Triagonal pyramidal b) ClF_3 – T-shape c) PCl_5 – See-saw d) SF_4 – Triagonal bipyramidal	K2	CO1
2	3	Teflon is obtained from a) difluoroethene b) monofluoroethene c) tetrafluoroethene d) tetrafluoroethane	K1	CO2
	4	Which of the following is a basic dyes a) Congo Red b) Aniline Yellow c) Alizarin d) Indigo	K2	CO2
3	5	In cubic crystal, a given plane intercepts the axes at 6a, 3b and 3c. The miller indices of the plane is _____ a) (211) b) (122) c) (311) d) (133)	K1	CO3
	6	In diamond, the coordination number of carbon is _____ a) four and its unit cell has eight carbon atoms b) four and its unit cell has six carbon atoms c) six and its unit cell has four carbon atoms d) four and its unit cell has four carbon atoms	K2	CO3
4	7	For a reaction, the rate = $k[\text{A}]^2[\text{B}]$, when the initial concentration of A is tripled then the rate a) decreases by a factor of three b) decreases by a factor of six c) increases by a factor of six d) increases by a factor of nine	K1	CO4
	8	Gold number is the measure of a) stability of colloidal system b) coagulating power of a colloid c) size of colloidal particles d) efficiency of the protective colloid	K2	CO4

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5	9	Promoter is a substance which a) enhance the activity of catalyst b) enhances the concentration of the catalyst c) lowers the activation energy of reactions d) lowers the kinetic energy of reactant	K1	CO5
	10	The free energy of a photochemical reaction a) is always positive b) is always negative c) can be positive and negative d) is neither positive nor negative	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.	Explain EAN rule and types of chelates.	K2	CO1
		(OR)		
	11.b.	Describe the postulates of Werner's theory.		
2	12.a.	Organize the isolation and uses of menthol and camphor.	K3	CO2
		(OR)		
	12.b.	Plan the preparation, properties and uses of polyester and polyacrylonitrile.		
3	13.a.	Categorize various elements of symmetry of a cubic crystal lattice.	K4	CO3
		(OR)		
	13.b.	Analyze Weiss and miller indices with example.		
4	14.a.	Solve the Derivation of rate constant for first order reactions.	K3	CO4
		(OR)		
	14.b.	Construct the Purification of sol by electrodialysis and ultrafiltration.		
5	15.a.	Distinguish between homogeneous and heterogeneous catalysis.	K4	CO5
		(OR)		
	15.b.	Survey about the Laws of photochemistry.		

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	List out the preparation, properties, structure and uses of interhalogen compounds i) ICl, ii) BrF ₃ , iii) IF ₇ .	K4	CO1
2	17	Inspect the general classification of alkaloids and explain the isolation and uses of i) coniine and ii) nicotine.	K4	CO2
3	18	Analyze the structure of NaCl and CsCl.	K4	CO3
4	19	Inference about the methods of determining order of reaction.	K4	CO4
5	20	Examine enzyme catalysis and its mechanism.	K4	CO5