22PHU413N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fourth Semester)

Branch - **PHYSICS**

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 of the following not has three significant figures? a) 3.70 b) 6.26×10^{25} c) 1.03 d) 0.052	K1	CO1
	2	Identify the primary standard a) NaOH b) $KMnO_4$ c) Thio d) $K_2Cr_2O_7$	K2	CO1
2	3	Amino acids are building blocks of a) Carbohydrates b) Fats c) Oils d) Proteins	K1	CO2
	4	Coagulation of proteins on heating is known as a) Sedimentation b) Decoloration c) Denaturation d) Precipitation	K2	CO2
3	5	The unit of specific conductance is a) ohm cm b) ohm cm^{-1} c) ohm^{-1} cm d) ohm^{-1} cm^{-1}	K1	CO3
	6	A solution which is resistant to changes of pH on addition of small amounts of an acid or a base is known as..... a) Buffer solution b) Isotonic solution c) Concentrated solution d) Saturated solution	K2	CO1
4	7	A system that can transfer both energy and matter to and from its surroundings is called a) an isolated system b) a closed system c) an open system d) a heterogeneous system	K1	CO3
	8	In an adiabatic process _____ can flow into or out of the system. a) no heat b) heat c) matter d) no matter	K2	CO1
5	9	The electronic spectra are caused by a) the absorption of light b) the emission of light c) the absorption of high energy photons d) none of these	K1	CO3
	10	Identify the auxochrome a) $-NO_2$ b) -NO c) N_2 d) -OH	K2	CO5

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 carefully the Q-test which is applied for the rejection or retention of an anomalous result.	K4	CO1
		(OR)		
	11.b.	Outline first aid procedure for accident involving acids, alkali and bromine.		
2	12.a.	How will you prepare the following heterocyclic compound? i) Furan ii) Thiophene iii) Pyridine	K2	CO2
		(OR)		
	12.b.	Show the various types of soaps with their composition and uses.		
3	13.a.	Explain principle of conductometric titrations. Draw and explain titration curves for Weak acid with a strong base	K2	CO2
		(OR)		
	13.b.	Show the difference between physical adsorption and chemical adsorption		
4	14.a.	Distinguish between i) Isothermal and adiabatic process ii) Reversible and Irreversible process	K2	CO2
		(OR)		
	14.b.	Generalize concept of entropy from the Second law of Thermodynamics. Show that entropy is a state function.		
5	15.a.	What conclusion are obtained from Beer-Lambert law? Outline the factors that may cause deviations from Beer and Lambert's law.	K4	CO3
		(OR)		
	15.b.	Define with examples chromophore, auxochrome, Bathochromic shift and hypsochromoic shift.		

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	Explain the difference between i) Mean and median ii) Determinant and indeterminate error iii) Accuracy and precision	K2	CO1
2	17	Describe the preparation and important chemical reactions of pyrrole	K2	CO1
3	18	Discuss Freundlich adsorption isotherm of a gas on a solid surface.	K4	CO3
4	19	Explain the concept of Joule –Thomson effect and inversion temperature	K2	CO2
5	20	List the various applications of UV-visible spectroscopy	K4	CO3

Z-Z-Z END