22PHU413N / 22PHU413

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 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	In which of the following numbers all zeros are significant? a) 0.0005 b) 0.0500 c) 50.000 d) 0.0050	K1	CO1
	2	Quantity of square of the standard deviation is called as --------- a) Mean b) Median c) Variance d) Confidence limit	K2	CO1
2	3	Which of the following is one of the components of soaps? a) Fatty acids b) Proteins c) Minerals d) Lipids	K1	CO1
	4	Which of the following is the simplest amino acid? a) Alanine b) Asparagine c) Glycine d) Tyrosine	K2	CO1
3	5	On the addition of a small amount of an acid or a base, the pH value of a buffer solution _____ a) increases b) decreases c) remains unaltered d) Increase followed by decreases	K1	CO2
	6	Specific conductance is the conductance of a) one centimeter cube of solution of an electrolyte b) one centimeter cube of a solid electrolyte c) one gram of the solution of an electrolyte d) one gram of the solid electrolyte	K2	CO2
4	7	A closed system is one which cannot transfer matter but transfer _____ to and from its surrounding a) Heat b) Work c) Pressure d) Radiation	K1	CO3
	8	The entropy of a pure crystal is zero at absolute zero. This is statement of a) first law of thermodynamics b) second law of thermodynamics c) third law of thermodynamics d) Zeroth law of thermodynamics	K2	CO3
5	9	Which one of the following is high energy transition? a) π to π^* b) n to π^* c) σ to σ^* d) π to σ^*	K1	CO3
	10	Beer-Lambert law predicts the relation between a) Temperature and pressure b) Concentration and absorbance c) Wavelength and frequency d) Volume and mass	K2	CO3

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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.	What do you mean by primary and secondary standard solutions? What are the requirements of primary standard solutions?	K2	CO1
		(OR)		
	11.b.	Explain confidence limit and interval. What is the necessity of using this limit?		
2	12.a.	Classify amino acids.	K2	CO1
		(OR)		
	12.b.	i) Illustrate the mechanism of cleaning action of soap (3 Marks) ii) Distinguish between detergent and soap. (4 Marks)		
3	13.a.	Analyze the buffer action of acidic and basic buffers.	K4	CO2
		(OR)		
	13.b.	State Ostwald dilution law and explain it.		
4	14.a.	Give a concise statement of the first law of thermodynamics. Deduce its mathematical form and explain the terms involved.	K2	CO2
		(OR)		
	14.b.	Derive the relation between Cp and Cv for an ideal gas.		
5	15.a.	Interpret the following terms i) Bathachromic shift ii) Hypsochromic shift iii) Hyperchromic shift	K4	CO3
		(OR)		
	15.b.	Analyze the different the types of electronic transition observed UV- visible spectrum.		

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	Classify errors. Mention any four methods for the minimization of errors.	K4	CO1
2	17	Explain the manufacture of soap by cold process.	K2	CO1
3	18	i) Distinguish between physical adsorption and chemical adsorption (6 Marks) ii) Explain Faraday's laws of Electrolysis(4 Marks)	K2	CO2
4	19	Derive an expression for Joule Thomson Co-efficient and explain its significance.	K3	CO2
5	20	Discuss the various applications of UV-visible spectroscopy.	K4	CO3

Z-Z-Z END