

QP Code: D132970		Total Pages:1	Name:
			Register No.
FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025			
(CUFYUGP)			
CHE1MN 102- BASIC INORGANIC AND BIO-INORGANIC CHEMISTRY			
2024 Admission onwards			
Maximum Time :2 Hours			Maximum Marks :70
Section A			
All Questions can be answered. Each Question carries 3 marks (Ceiling : 24 Marks)			
1	What is Moseley's contribution to the periodic table?		
2	Define ionization enthalpy and explain its variation across a period.		
3	Explain the concept of oxidation number with examples.		
4	What is the role of metal ions in enzyme activity?		
5	Write a short note on the transport of CO ₂ in blood.		
6	Describe the structure of chlorophyll and its metal center.		
7	Explain the biological importance of zinc.		
8	Draw the structure of cis platin and oxaliplatin.		
9	What are the effects of mercury toxicity in humans?		
10	Mention two biological functions of cobalt.		
Section B			
All Questions can be answered. Each Question carries 6 marks (Ceiling : 36 Marks)			
11	Describe the Bohr model of the atom and its limitations.		
12	Explain the concept of quantum number.		
13	Discuss the electronic configuration of transition elements (atomic number 21-30) .		
14	Predict the shapes of XeF ₄ , SF ₆ , and IF ₇ using VSEPR theory.		
15	Define molarity and normality. Calculate the normality of a solution containing 5.3 g of Na ₂ CO ₃ in 250 mL solution.		
16	Explain the principle and procedure of complexometric titration using EDTA.		
17	Derive the relation between solubility and solubility product of AgCl and BaCl ₂		
18	A solution contains 0.2 M NaOH. Explain the concept of molarity and calculate the mass of NaOH present in 2litres of this solution.		
Section C			
Answer any ONE .Each Question carries 10 marks (1x10=10 Marks)			
19	Explain hybridization in PCl ₅ and SF ₆ . Include orbital diagrams and geometry.		
20	Explain the redox titration and indicator used. A 20mL sample of FeSO ₄ requires 20 mL of 0.1 N KMnO ₄ for oxidation. Calculate the amount of FeSO ₄ present. (atomic mass of Fe=56, S=32, O=16).		

QP Code: D 112833		Total Pages:2	Name:
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(CUFYUGP)			
CHE1MN 102: BASIC INORGANIC AND BIO-INORGANIC CHEMISTRY			
2024 Admission onwards			
Maximum Time :2 Hours			Maximum Marks :70
Section A			
All Question can be answered. Each Question carries 3 marks (Ceiling: 24 Marks)			
1	State Paulis exclusion principle.		
2	Calculate the uncertainty in the position of an electron (mass = 9.1×10^{-31} kg) moving with a velocity 300 ms^{-1} accurate upon 0.001%.		
3	Write Schrodinger wave equation and explain the terms in it.		
4	Explain VSEPR theory with water as an example.		
5	What is hybridization and shape of SF ₆ ?		
6	Describe the variation of oxidation state and valency along a period and a group.		
7	Compare the ionization enthalpies of group I alkali metals with explanation.		
8	Calculate the molarity of a solution of urea (molecular mass 60) prepared by dissolving 15 grams of urea in one liter of water.		
9	What are the advantages of using double burette titrations?		
10	Derive a relation between solubility and solubility product of lead iodide (PbI ₂)		
Section B			
All Question can be answered. Each Question carries 6 marks (Ceiling: 36 Marks)			
11	Describe the role of haemoglobin in the transport of oxygen		
12	Draw the structure of any two anticancer drugs.		
13	Explain the toxicity of heavy metals.		
14	What is the color change of phenolphthalein and methyl orange during acid base titrations? Explain the theory of color change.		
15	How molecular orbital theory explains the bonding, stability and magnetism of hydrogen molecule.		
16	The shape of SF ₄ is not tetrahedral and square planar why?		
17	Explain the statement "Shape of orbitals is determined by the azimuthal quantum number l and orientation by magnetic quantum number m ".		
18	Describe the features of modern periodic table.		

Section C**Answer any ONE. Each Question carries 10 marks (1×10 = 10 Marks)**

19	Write an essay on a) common ion effect and its application in qualitative analysis b) advantages of microanalysis.
20	Explain the theory of acid-base, redox, and complexometric titrations.