

QP Code: D 112833		Total Pages:2	Name:
		Register No.	
<b>FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2024</b>			
<b>(CUFYUGP)</b>			
<b>CHE1MN 102: BASIC INORGANIC AND BIO-INORGANIC CHEMISTRY</b>			
<b>2024 Admission onwards</b>			
Maximum Time :2 Hours			Maximum Marks :70
<b>Section A</b>			
<b>All Question can be answered. Each Question carries 3 marks (Ceiling: 24 Marks)</b>			
1	State Paulis exclusion principle.		
2	Calculate the uncertainty in the position of an electron (mass = $9.1 \times 10^{-31}$ kg) moving with a velocity $300 \text{ ms}^{-1}$ 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 <sub>6</sub> ?		
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 <sub>2</sub> )		
<b>Section B</b>			
<b>All Question can be answered. Each Question carries 6 marks (Ceiling: 36 Marks)</b>			
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 <sub>4</sub> 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 <b>a)</b> common ion effect and its application in qualitative analysis <b>b)</b> advantages of microanalysis.
20	Explain the theory of acid-base, redox, and complexometric titrations.