

B.Sc. (CBCS Pattern) Sem-I
USCHT01 - Chemistry-I : Inorganic Chemistry

P. Pages : 2

Time : Three Hours



GUG/W/22/11544

Max. Marks : 50

- Notes :
1. All questions are compulsory.
 2. Draw diagram wherever necessary.
 3. Use of calculator is permitted.

1. a) Write a note on 5
i) De-Broglie Idea of matter wave
ii) Heisenberg uncertainty principle.

- b) What do you mean by Ionization energy? State factors affecting on it and variation of IE in group as well as period. 5

OR

- c) Give limitations of Bohr's theory. 2 ½
d) State and explain Hund's rule of maximum multiplicity. 2 ½
e) Electron affinity of fluorine is less than that of chlorine. Explain. 2 ½
f) Calculate effective nuclear charge for 35 electron of Mg (At. No. of Mg = 12) 2 ½

2. a) Discuss various rules of VSEPR theory and explain shape of NH₃ molecule on the basis of VSEPR theory. 5

- b) State the condition for the formation of MO and Explain molecular orbital diagram for N₂ molecule. 5

OR

- c) What is sp³d² hybridization? Explain formation of SF₆ molecule on the basis of hybridization. 2 ½
d) State any five postulates of valence Bond Theory. 2 ½
e) Be₂ diatomic molecule does not exist. Explain on the basis of MOT 2 ½
f) Explain MO diagram of B₂ molecule 2 ½

3. a) What is diagonal relationship? Explain diagonal relationship between Li and Mg. 5

- b) Discuss following properties of 'P' block elements 5
i) Oxidation state ii) Electronegativity

OR

- c) Explain complex formation tendency of alkali & alkaline earth metal. 2 ½
d) State importance of 'S' Block elements in biosystem. 2 ½
e) Explain structure and bonding in phosphorus Pentoxide. 2 ½
f) Write a short note on the hydrides of group V_A elements. 2 ½

