

Roll No.

91552

**B. Sc. (Bio-Technology) 2nd Sem.
(New Scheme) Examination – May, 2016**

INORGANIC CHEMISTRY

Paper : BT-206

Time : Three Hours]

[Maximum Marks : 40

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting at least two questions from each Section I and II.

SECTION – I

1. (a) "Water is lighter than ice". Comment. 2
- (b) What is meant by n-type and p-type semi-conductors ? What is the effect of temperature on intrinsic semi-conductor ? 3
- (c) Explain why ionic mobility decreases as : 3



2. (a) Explain conductivity of Mg using band model of bonding in metals. 3
- (b) What are crown ethers and cryptates? Give two points of differences between them. 2
- (c) Write detailed note on Vander Waal's forces of attraction. 3
3. (a) Discuss the structure and geometrics of: 3
- (i) XeF_4
- (ii) XeO_3
- (iii) XeO_2F_2
- (b) NH_3 has higher boiling point than PH_3 . Why? 2
- (c) Give difference in structures of CaH_2 and BeH_2 . 3
4. (a) Discuss Valence Bond Model of bonding in metals. 3
- (b) Write down all the elements of group 18 with their electronic configurations. 2
- (c) What is diagonal relationship? What are its causes? Explain using examples. 3

SECTION - II

5. (a) Write short note on Silicon Polymers. 3

- (b) Explain the structures of : 3
- (i) Borazine
- (ii) Aluminium chloride
- (c) Write short note on allotropes of Phosphorus. 2
6. (a) What is Back-bonding ? Why does it occur in Boron halides and not aluminium halides ? 3
- (b) Discuss the structure of H_2O_2 . 2
- (c) Discuss structure of H_2SO_4 & explain why it is viscous. 3
7. (a) Write the names and structures of all three oxides of Phosphorus. 3
- (b) What are inter halogen compounds ? Discuss their general characteristics. 3
- (c) Name any three oxides of Nitrogen and discuss their structures. 2
8. (a) Complete the following : 2
- (i) $PbS + H_2O_2 \rightarrow$
- (ii) $ICl + H_2O \rightarrow$
- (iii) $B_3N_3H_6 \xrightarrow[\text{silent electric discharge}]{\text{heat}}$
- (iv) $KMnO_4 + H_2SO_4 \rightarrow$
- (b) Write short note on Carbides. 3

(c) Explain the following :

3

(i) ICl_7 does not exist but IF_7 exists.

(ii) Inert pair effect.

(iii) F_2 is better oxidising agent than Cl_2 .
