

Roll No.

(10/20-I)

5188

B. Sc. EXAMINATION

(For Batch 2014 & Onwards)

(Second Semester)

CHEMISTRY

Paper IV

CH-104

Inorganic Chemistry

Time : Three Hours

Maximum Marks : 27

Note : Q. No. 1 is compulsory. Attempt any *two* questions from each Section.

1. (i) Why acetic acid exist as dimer ?
- (ii) How can you stabilise a sodide (Na^-) ion ?
- (iii) Which Noble gas is radio active ?

- (iv) Write electronic configuration of Sn ($Z = 50$).
- (v) Out of BCl_3 and BF_3 which is more acidic and why?
- (vi) Draw the structure of ClO_3^- .
- (vii) Why is H_3PO_3 dibasic acid ? $1 \times 7 = 7$

Section A

2. (a) Write short notes on the following :
- (i) Intrinsic semiconductor
- (ii) Extrinsic semiconductor. 2
- (b) Why are alkali metals soft and have low melting points? 2
- (c) What is p-n Junction ? 1
3. (a) Explain the biological role of Ca^{2+} and Mg^{2+} . 3
- (b) Give the properties and structure of alkyl Lithium. 2

4. (a) How will you prepare XeF_2 ? Write two balanced chemical equations. 2
- (b) Draw the structure of the following and also write their hybridisation :
- (i) XeF_4
- (ii) XeOF_2
- (iii) XeO_3 . 3

Section B

5. (a) Explain the structure and bonding of diborane. 2
- (b) Explain the following :
- (i) Carbon has greater tendency of catenation than silicon. 1
- (ii) In $\text{N}(\text{CH}_3)_3$ the N has pyramidal geometry while in $\text{N}(\text{SiH}_3)_3$ it has planar geometry. 2
6. (a) What is the difference between Red phosphorus and White phosphorus ? 2

(b) Account for the following :

(i) HNO_2 is weaker acid than HNO_3 .

(ii) PCl_5 is known but NCl_5 is not known. 3

7. (a) Give the evidence for basic character of Chlorine and Bromine. 2

(b) Arrange the following in increasing order of acidic strength and give reason in support of your answer HClO_4 , HClO , HClO_2 , HClO_3 . 2

(c) Out of Sn^{2+} and Sn^{4+} ions, which is more ionic. ? 1