



# UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Eighth Semester – 2019

Paper: Inorganic Chemistry (Sp. Theory-I)

Course Code: CHEM-425 Part – I (Compulsory)

Time: 15 Min. Marks: 10

Roll No. in Fig. ....

Roll No. in Words. ....

Signature of Supdt.: .....

**ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.**

**Division of marks is given in front of each question.**

**This Paper will be collected back after expiry of time limit mentioned above.**

**Q.1. Encircle the correct option.**

**(10x1=10)**

- i. Heavy metals can be accurately analyzed by  
(a) FES (b) AAS (c) ICP (d) Both 'b' and 'c'
- ii. ICP is a type of \_\_\_\_\_  
(a) Fluorescence spectroscopy (b) Fourier transform Infrared spectroscopy  
(c) Atomic Emission spectroscopy (d) Absorption spectroscopy
- iii. The value of Born exponent "n" for  $\text{Na}^+$  is  
(a) 8 (b) 9 (c) 7 (d) 10
- iv. \_\_\_\_\_ is a "One dimensional conductor"  
(a)  $(\text{SN})_x$  (b)  $(\text{BN})_x$  (c) Both 'a' & 'b' (d) None
- v.  $\text{B}_2\text{H}_6$  is \_\_\_\_\_ molecule  
(a) electron deficient (b) An Arrhenius Base (c) oxidizing agent (d) None
- vi. Silicon is used in preparation of  
(a) Semiconductors (b) Methyl Silicon Chlorides  
(c) Both a & b (d) None
- vii. Radius ratio in case of *fcc* packing is  
(a) 0.414 (b) 1.00 (c) 0.155 (d) 0.732
- viii. Temperature of Plasma ranges from \_\_\_\_\_.  
(a) 4000-5000 K (b) 2000-4000 K (c) 5000-5500 K (d) 6000-10000K
- (ix) The most stable one to disproportionation is \_\_\_\_\_.  
(a)  $\text{CuI}_2$  (b)  $\text{AuF}$  (c)  $\text{AuF}_3$  (d) None
- (x) The strongest fluorinating agent is  
(a)  $\text{AgF}$  (b)  $\text{HgF}_2$  (c)  $\text{CsF}$  (d) None



**ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED**

**Q.2. Give short answers to the following questions. (10x2=20)**

1. Describe different zones of plasma in ICP.
2. Draw the instrumentation sequence of a Flame Photometer?
3. What are the advantages of Graphite Furnace over Flame in AAS?
4. What are criteria of spontaneity of a reaction?
5. What is Feldspar?
6. How can zeolites be synthesized?
7. What do you know about talc?
8. Give temperature ranges of flame in AAS.
9. What are ultramarines?
10. Describe "Island" model in Phosphazenes.

**Q.3. Give adequate answers to the following questions. (10x3=30)**

- i. Write a note on the following
  - (a) Heterocyclic ring of Nitrogen and Sulphur.
  - (b) 'Halogen Exchange Reactions'.
- ii.
  - (a) Differentiate the role of 'flame' in Flame Emission and Atomic Absorption spectroscopy.
  - (b) Describe the role of thermodynamics in Interpretative chemistry.
- iii. Give principle, instrumentation and working of 'Inductively Coupled Plasma spectroscopy' (ICP).