(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 0 4 9

Exam. Code : 0 0 0 1

B.A./B.Sc. (General) 1st Semester

(2123)

CHEMISTRY

(Same for B.Sc. Microbial & Food Tech.)

Paper—I : Inorganic Chemistry—A

Time Allowed : Three Hours] **[Maximum Marks : 22**

Note :— Attempt **five** questions in all by selecting **one** question each from Units-I to IV and Question No. 9 is compulsory.

UNIT—I

1. (a) Derive Debroglie Equation and how it justifies quantization of angular momentum.

   (b) Why electron cannot reside inside the nucleus ? 2,2

2. (a) Write Schodinger wave equation with polar co-ordinates and give the significance of Radial part.

   (b) Which of following orbitals are not possible and why 3p, 2f, 1d, 4s ? 2,2

UNIT—II

3. (a) Why ionic radii of Na^+ is smaller than Na but Cl^- is larger than Cl atom ?

   (b) Why electron affinity of Cl is higher than F atom ? 2,2

4. (a) The inter-nuclear distance of KCl is 3.14 Å Calculate ionic radii of K^+ & Cl^-.

   (b) Define shielding effect. How it varies or effects Ionization Energy ? 2,2

UNIT—III

5. (a) How Bartlett gave an idea that Noble gases can form compounds ?

   (b) Predict the hybrid state of Noble gas element in following :

   $XeOF_2$, XeO_3, XeF_2, XeF_6. 2,2

6. (a) Why Be resembles with Al ? Give at least four resemblances.

   (b) Why alkali metal acts as strong reducing agent & is used in photo electric cells ? 2,2

UNIT—IV

7. On the basis of M.O. Theory :

   (a) Explain the relative stability of :

   NO, NO^+, NO^-

   (b) Bond order of $O_2^+ > O_2 > O_2^-$. 2,2

8. (a) Why repulsion in L·P – L·P > L·P – BP > B·P – B·P.

(b) What are limitations of valence bond theory ? 2,2

(Compulsory Question)

9. (a) Why Cu possesses anomalous electronic configuration ?

(b) Why Be & Mg do not respond to flame test.

(c) What is cause of periodicity in modern periodic table ?

(d) How many nodes present in 3s and 3d ?

(e) Why Li differs from rest of group ?

(f) What are the units of electronegativity ? 6×1=6