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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(BT) (2013 to 2017) (Sem.-1)

INORGANIC CHEMISTRY

Subject Code : BSBT-103

Paper ID : [F0202]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Answer briefly :**

- a) Give examples of π -acid ligand complexes.
- b) What do you mean by Vander waal Forces?
- c) Is BH_3 electron deficient? Explain.
- d) Explain Octet Rule.
- e) What do you mean by Effective Nuclear Charge?
- f) Differentiate between Atomic and Ionic Radius.
- g) Which noble gas is the easiest to liquefy and why?
- h) Which has more electron affinity F or Cl and why?
- i) Write in the increasing order of ionic size: Na^+ , F^- , Mg^{2+} , O^{2-} .
- j) What do you mean by hydration energy?

SECTION-B

2. Draw all the isomers for MA_2B_2 , MA_2BC .
3. Draw the geometry and give details of hybridization of $XeOF_4$ and $XeOF_2$.
4. What is Hydrogen Bonding? Discuss its different types.
5. Calculate CFSE and Magnetic Moment of the following : $[CO(NH_3)_6]^{3+}$, $[COF_6]^{3-}$
6. What do you mean by the term Back Bonding with respect to Metal Carbonyl Complexes?

SECTION-C

7. Discuss the trends along the periods and groups of the following :
 - a) Ionisation Energy
 - b) Electron Affinity
 - c) Electronegativity
 - d) Atomic Size
 - e) Melting and Boiling Points
8. Complete the following reactions:
 - a) $NaF + XeF_6 \rightarrow$
 - b) $AsF_5 + XeF_6 \rightarrow$
 - c) $XeF_6 + H_2O \rightarrow$
 - d) $Xe + PtF_6 \rightarrow$
 - e) $XeOF_2 + NaOH \rightarrow$
9. Draw molecular orbital diagram of CO and compare its stability with CO^+ . Also discuss bonding orbitals of CO^- , CO , CO^+ .