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Total No. of Questions : 09

B.Sc.(BT) (2014 to 2017) (Sem.–1)

INORGANIC CHEMISTRY

Subject Code : BSBT-103

M.Code : 47022

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) Which element has higher atomic volume Na or K and Why?

(b) Explain why electron affinities of Halogens are the highest?

(c) Why do noble gases exist as monoatomic?

(d) Discuss the geometry of SF_6 molecule on the basis of VSEPR theory.

(e) Explain the difference in bond angles of NH_3 and NF_3.

(f) Define optical isomerism with a suitable example.

(g) Discuss the differences between inter and intramolecular hydrogen bonding with examples.

(h) Define paramagnetism and anti-ferromagnetism.

(i) Discuss the important postulates of VBT.

(j) What is the importance of Fajan's rules in bonding?

SECTION-B

2. What do you understand by the terms resonance and resonance energy? What are the essential conditions for writing resonating structures?

3. Using VSEPR theory, explain the structures of SF_4, ClF_3 and H_2O in details.

4. With the help of MOT explain why bond length of CO^+ is larger than that of CO?

5. Discuss the basic postulates of Werner's co-ordination theory with suitable examples.

6. Discuss the limitations of VBT and postulates of MOT in covalent bonding.

SECTION-C

7. (a) Define electronegativity and discuss Pauling's scale of electronegativity.

   (b) Define ionisation, hydrate and linkage isomerism in co-ordination compounds with suitable examples of each of them.

8. (a) Discuss sp^3 d^3 and sp^2 hybridizations in details with examples.

   (b) Discuss postulates of CFT in details. What are labile and inert complexes?

9. (a) Compare the stability of N_2 and O_2 molecules on the basis of MOT.

   (b) What are isoelectronic species? Give an example of the molecule isoelectronic with CO.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC against the Student.