Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

M.Sc.(Chemistry) (2015 to 2017) (Sem.–1)

INORGANIC CHEMISTRY-I

Subject Code : MSCH-101

M.Code : 71595

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Section-A is compulsory.
2. Attempt one question from each UNIT.
3. Attempt FIVE questions in all.
4. All Questions carry equal marks.

SECTION-A

1. Answer briefly :

a. Define Radius Ratio Rules.

b. What are Perovskite structures?

c. Define pH.

d. What are Lewis acids?

e. Define Base on the basis of HSAB principle.

f. Why NH_3 is stronger base than PH_3?

g. Why H_3PO_2 has reducing character?

h. What are unidentate ligands?

i. What is effect of pH on complexation?

j. What are molecular orbitals?

UNIT-I

2. Write a detailed account on molecular orbital theory of homo and hetero-nuclear diatomic molecule. 20

3. Write a detailed account on VSEPR model of molecular structure. 20

UNIT-II

4. a. The stability of peroxide and superoxide of alkali metal increases as we go down the group. Explain giving reason. 06

   b. Write a note on crypts of alkali metals. 04

   c. Write a note on oxides of alkaline earth metals. 10

5. a. Compare the properties of alkali metals and alkaline earth metals. 10

   b. Write the methods of preparation and uses of hydrides of alkali metals. 10

UNIT-III

6. a. Write a note on boranes. 10

   b. Write a note on chemistry of aluminium halides. 10

7. a. Write a note on chalcogenides. 06

   b. Write a detailed account on coordination complexes of group 12 elements. 10

   c. Write a note on silicates. 04

UNIT-IV

8. a. Write a detailed account on lattice energy. Describe Born Haber cycles with suitable examples. 10

   b. Describe various types of defects in solids with suitable examples. 10

9. a. Write in detail the significance of thermodynamic and acidity parameters with suitable examples. 12

   b. Write a note on high temperature superconductors. 8

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.