TM153075C

Reg. No:……..

Name:……..

M. Sc. DEGREE (C.S.S.) EXAMINATION, OCTOBER 2016
SEMESTER III - CHEMISTRY
CH3C09TM – STRUCTURAL INORGANIC CHEMISTRY

Time: Three Hours **Maximum Marks: 75**

PART A

I. Answer any five questions. Each question carries 3 marks

1. Explain the structure of antifluorite
2. Distinguish between line defects and plane defects
3. What is ferromagnetic solid? Write one example
4. Define Meissner effect. Where does it find application?
5. How is borazine prepared? Why it is called inorganic benzene?
6. Explain catenation and heterocatenation with example
7. What is soft glass?

(5×3=15)

PART B

II. Answer any six questions. Each question carries 5 marks

8. Distinguish between spinel and inverse spinel structure
9. Write a note on Perosvskite structure
10. Define superconductivity. What are important advantages of superconductors? Where do they find application?
11. Explain piezoelectric effect and inverse piezoelectric effect. Give the applications of piezoelectric crystals
12. Explain the structure and bonding in heterocyclic inorganic ring systems of phosphorous nitrogen compounds
13. Distinguish between isopoly and hetero poly acid of molybdenum
14. Explain Wades Mingo's rules as applied to carboranes?
15. Write notes on polyatomic zintl ions
16. Explain the terms plasticity & plasticity index

(6×5=30)

PART C

II. Answer any two questions. Each question carries 15 marks

17. Explain briefly a) diffusion and its mechanisms b) development of single crystals
18. Discuss zone theory of solids and its application in the classification of materials into conductors, semi conductors and non conductors?
19. What are silicates? Explain different types of silicates with example
20. a) Discuss the bonding in $[Re_2X_8]^{2-}$ b) Elaborate the methods of synthesis of nanomaterials

(2×15=30)