



QP CODE: 25803004



25803004

Reg No :

Name :

INTEGRATED MSC DEGREE EXAMINATION, JUNE 2025

Eight Semester

INTEGRATED MSC BASIC SCIENCE-CHEMISTRY

CORE - ICH8CR01 - ADVANCED INORGANIC CHEMISTRY-II

2020 Admission Onwards

30FFDBB5

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Which are different types of imperfections?
2. Illustrate the structure of spinel.
3. How crystals can be grown from solution?
4. Write a short note on Ferroelectricity.
5. Write a short note on photoconductivity.
6. Discuss Type I superconductors.
7. Explain the structural features of zeolites.
8. Write any four applications of Boron Clusters.
9. Write a short note on electron relay in photosynthetic system.
10. Discuss the synthesis of ferrocenyl polyamide.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Discuss the structure and properties of Rutile.
12. With examples explain Type I and Type II thermal decomposition in solids.
13. Write a note on Kronig-Penney model for an electron.
14. What are superconducting cuprates? Explain the synthesis and structure of any one.
15. Explain the concept 'STYX' number with any 5 examples.





16. What are the main methods for the synthesis of cage like structures of phosphorus? Explain its structure and bonding.
17. Which type of transitions are possible in the excited states of a transition metal compound? Explain.
18. What are Poly(ferrocenylsilane)s? Discuss its synthesis.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. a) Explain phase transitions in solids. Discuss first and second order phase transitions. b) What is martensitic transformation? C) Explain Spinodal decomposition.
20. Discuss the magnetic properties of transition metal oxides a) Garnets b) spinels c) Ilmenites d) perovskites and e) magnetoplumbites.
21. What are sulfur nitrides? Explain the synthesis, structure and properties of S₄N₄, S₂N₂ and (SN)_x.
22. Explain different types of photochemical reactions. Discuss the applications of photochemistry in different fields.

(2×5=10 weightage)

