

QP CODE: 26801750



Reg No :

Name :

INTEGRATED M.Sc. DEGREE EXAMINATION, APRIL 2026

Eight Semester

INTEGRATED M.Sc. BASIC SCIENCES-CHEMISTRY

CORE - ICH8CR01 - ADVANCED INORGANIC CHEMISTRY-II

2020 Admission Onwards

77AB2BB4

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Differentiate the structure of Zinc blende and Wurtzite.
2. Explain Type II reaction in Thermal decomposition of solids.
3. Discuss Martensitic transformations.
4. Draw the band structure of metal, semiconductor and insulators.
5. Discuss Hall Effect.
6. List the applications of High Temperature Superconductors.
7. Write a short note on selenium ring compounds.
8. Write a short note on clusters of tellurium.
9. Explain photosynthetic water splitting.
10. Write a short note on organometallic dendrimers.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Discuss different types of point defects with example.
12. Differentiate spinel and inverse spinel structure.
13. Explain the magnetic properties of a) garnets and b) spinels
14. What is luminescence? Explain its applications in different fields.





15. Discuss the preparation and application of condensed phosphates.
16. Discuss the bonding and structure of Phosphorous cages.
17. Explain the bonding in $[\text{Re}_2\text{Cl}_8]^{2-}$.
18. Discuss the applications of rigid rod polyynes.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain various methods of crystal growth a) from solution b) growth from melt and c) vapor deposition technique.
20. a) Give brief account of High Temperature Superconductors. (b) Explain BCS theory.
21. Discuss the structural features of five classes of boron hydrides. Explain the concept styx number with examples.
22. Explain photochemical reactions. Discuss the photochemistry of Co(III) , Ru(II) , Rh(III) and Cr(III) complexes.

(2×5=10 weightage)

