



QP CODE: 25804439



25804439

Reg No :

Name :

INTEGRATED MSc DEGREE EXAMINATION, OCTOBER 2025

Fifth Semester

INTEGRATED MSc BASIC SCIENCES - CHEMISTRY

CORE - ICH5CR02 - INORGANIC CHEMISTRY II

2020 Admission Onwards

A17C30DD

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Explain the principle behind the concentration of ore by electrostatic separation.
2. Explain the principle behind electrolytic refining and the role of electrolyte and electrode in this process
3. Briefly explain the electrochemical theory of rusting of iron?
4. Define anodization?
5. Identify one significant biological role each of Co, Mn, Ni and Cu?
6. What are metalloenzymes? Give two examples?
7. Explain the structure and functions of haemocyanins as an oxygen transport proteins.
8. Define Geiger Nuttal rule.
9. What is a cloud chamber used for?
10. Briefly explain the use of radioisotopes in studying in kinetics of exchange reactions?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Discuss the principle behind sodium pyrometallurgy and the role of sodium as a reagent in these processes? Provide examples of metals that can be extracted using sodium pyrometallurgy?
12. Explain the mechanism of electrochemical corrosion?
13. Explain the use of inorganic coatings for the prevention of metal corrosion?
14. Write down the role of Zn in biochemistry.





15. What is the role of calcium in muscle contraction?
16. Discuss the nature of forces which hold nucleons together in a small nucleus. Explain the role of mesons in connection.
17. What are the essential components required for a chain reaction to sustain itself? Can you provide examples of natural phenomena or human made processes that involve chain reactions?
18. Write a brief note on the preparation of the following transuranic elements a) Np b) Pu c) Cm d) Bk
(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Describe the general procedures of extracting a metal from its ores.
20. With the help of Ellingham diagram explain the physicochemical principle of extraction of the following metals a) Ag b) Cu c) Ti d) Al e) Mg
21. Write a note on the following a) Photosystem I and Photosystem II b) Vitamin B12 c) Chlorophyll a
22. Explain the following terms in nuclear reactions a) Fission fragments and mass distribution b) fission yield c) Fission energy d) fission cross section

(2×5=10 weightage)

