QP CODE: 24803622

24803622

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, JUNE 2024

Fifth Semester

INTEGRATED MSC BASIC SCIENCE-CHEMISTRY

CORE - ICH5CR02 - INORGANIC CHEMISTRY II

2020 Admission Onwards

EC2D335F

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain the terms mineral and ore. Give examples.
2. Compare and contrast calcination and roasting processes in terms of their objectives , temperature ranges and applications.
3. How does alloying prevent rusting?
4. What is phosphating in corrosion control?
5. Discuss the use of radioisotopes in medicine, such as in cancer treatment or dignostic imaging
6. What is PS I in photosynthesis?
7. Write down the application of metals in MRI shift reagents.
8. What is meant by am.u.
9. What is the energy dependence of a neutron capture cross section?
10. Name any two examples of transuranic elements and their preparation.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain the process of aluminothermic reductions and its significance in metallurgy.
12. With the help of Ellingham diagram show the change in free energy with temperature for metal - metal oxide reactions for Fe, Cu, Ag, Al angd Mg

13. Write a note on classification of steel.

14. Discuss the role played by essential elements in bilogical systems.

15. What are redox metalloenzymes, and what is their role in biological redox reactions?

16. Differentiate between transient and secular equilibrium with examples.

17. What are nuclear fission reactions? Write a note fission fragments and their mass distribution.

18. How is ionizing radiation detected and measured using a Geiger - Muller counter?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Describe various methods used for the purpose of refining of metals a) Chromatographic techniques b) Oxidative refining c) Vapour phase refining

20. Explain the phenomenon of corrosion with example. Differentiate between dry corrosion and wet corrosion. Explain the factors which influences corrosion.

21. Compare and contrast the oxygen binding properties and mechanisms of haemoglobin, myoglobin, haemerythrins and haemocyanins.

22. Describe the steps involved in conducting a neutron activation analysis experiment, from sample preparation to data analysis.

(2×5=10 weightage)