K24P 3880

Reg. No. : .....

Name : .....

I Semester M.Sc. Degree (CBCSS – OBE – Reg./Supple./Imp.) Examination, October 2024
(2023 Admission Onwards)
CHEMISTRY/CHEMISTRY WITH DRUG CHEMISTRY SPECIALIZATION
MSCHD01C02/MSCHE01C02 : Inorganic Chemistry – 1

Time : 3 Hours

Max. Marks : 60

SECTION – A

Answer **any five** questions. Short answer questions. **Each** question carries **three** marks.

1. Explain the importance of partition coefficient in solvent extraction.
2. Why ionic liquids are considered green solvents ?
3. What are super acids ? Give an example and state one application.
4. State the principle of GM counters.
5. Explain the structure and preparation of P_4S_3.
6. What are metallocarboranes ? Describe the structure of metallocarborane of Fe.

(5×3=15)

SECTION – B

Answer **any three** questions. Short answer questions. **Each** question carries **six** marks.

7. Explain the theory and procedure for gravimetric analysis of nickel and copper.
8. Describe the principle of EDTA titration. How does EDTA titration differ from acid-base titrations ?

P.T.O.

9. Compare the properties of hard and soft acids and bases using the HSAB concept.
10. Explain the theory of radioactive equilibrium with a detailed comparison of transient and secular equilibrium.
11. Elaborate the structure and bonding of diboranes.

(3×6=18)

SECTION – C

Answer **any three** questions. Essay type questions. **Each** question carries **nine** marks.

12. Explain the precipitation phenomena of organic precipitants such as oxine reagent, cupferron and anthranilic acid in inorganic analysis.
13. Describe the properties of HF, NO and SO as nonaqueous solvents, on the basis of their reactivity and applications.
14. Compare and contrast the shell and optical nuclear models, highlighting their major merits.
15. Analyze the applications of radiation chemistry in rock dating, tracer techniques and nuclear activation analysis.
16. Discuss the synthesis, structure and properties of sulfur-nitrogen compounds like S_2N_2 and S_4N_4.

(3×9=27)
