K25P 3530

Reg. No. : .....

Name : .....

I Semester M.Sc. Degree (C.B.C.S.S. – O.B.E. – Reg./Supple./Imp.) Examination, October 2025
(2023 Admission Onwards)
CHEMISTRY/CHEMISTRY WITH DRUG CHEMISTRY SPECIALIZATION
MSCHE01C02/MSCHD01C02 : Inorganic Chemistry – I

Time : 3 Hours

Max. Marks : 60

SECTION – A

Short answer questions. Answer **any five** questions and **each** carries **three** marks.

1. Illustrate precipitation from homogeneous solution with an example.
2. Define masking and demasking in complexometric titrations. Give one example for each.
3. What are proton sponges ? Give an example.
4. What are super acids and how they are prepared ? Mention some of the applications of super acids.
5. Define half-life and average life of a radioactive element.
6. Explain the preparation and structure of P_4S_{10}. **(5×3=15)**

SECTION – B

Paragraph questions. Answer **any three** questions and **each** carries **six** marks.

7. Describe the basic principles of nuclear reactors.
8. Explain trends in acidic strength of hydracids and oxyacids of Group 17 elements.
9. Explain the principle and chemistry involved in the working of Fricke dosimeter.
10. Applying Wade's rules, predict and explain the geometry of the following :
    a) $(B_{10}H_{10})^{2-}$
    b) B_5H_9
    c) CB_8H_{12}
    d) B_4H_{10}
11. Describe the characteristics and theory of metal ion indicators used in complexometric titrations. **(3×6=18)**

P.T.O.

SECTION – C

Essay type questions. Answer **any three** questions and **each** carries **nine** marks.

12. Explain the theory of electrogravimetry with an example. Mention the applications of electrogravimetry.

13. Compare and contrast room temperature ionic liquids and super critical fluids based on their fundamental nature, key properties and applications as green solvents.

14. Outline the theory and experimental setup involved in neutron activation analysis. Comment on the merits and demerits of this technique.

15. Give an account of isopoly and heteropoly acids of tungsten.

16. What are phosphazenes ? Discuss in detail the preparation, structure, bonding and properties of hexachlorocyclotriphosphazene. **(3×9=27)**
