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W – 5625

Reg. No. : .....

Name : .....

First Semester M.Sc. Degree Examination, January 2026

Chemistry/Analytical Chemistry/Polymer Chemistry/ Chemistry with  
specialization in drug design and development

CH 211/CL 211/PC 211/CHDD 511: INORGANIC CHEMISTRY - I

(2020-2024 Admission)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer any **two** questions from each unit. Each sub-question carries **2** marks.

- I. 1. What is the first order Jahn-Teller distortion?
2. What is  $10 Dq$ ?
3. What is pi bonded complex?
- II. 4. What is meant by coefficient of variation?
5. What is the computation of error?
6. Distinguish between direct and back titration methods.
- III. 7. Why solid electrolytes are used?
8. What are solid oxide fuel cells?
9. What is inorganic phosphor?
- IV. 10. What are isopolyacids?
11. What are zeolites?
12. What is perxenate ion?
- V. 13. What is the hydrologic ion?
14. Discuss the unique properties of water
15. What is meant by Ion speciation in soil solution?

(10 × 2 = 20 Marks)

P.T.O.



SECTION – B

Answer **all** questions. Each question carries **5** marks.

16. What are the advantages of the molecular orbital theory?

**OR**

17. Discuss the basis of spectrochemical series.

18. Discuss the applications of complexometric titrations

**OR**

19. Discuss the various types of volumetric titrations.

20. What are mixed ionic electronic conductor materials? What are their uses?

**OR**

21. What are the metal chalcogenides? What are their properties?

22. What is Keggin structure? Discuss its importance.

**OR**

23. What are polysiloxanes? How are they formed?

24. Briefly explain the catalytic destruction of ozone.

**OR**

25. Describe the redox status in soil.

(5 × 5 = 25 Marks)

SECTION – C

Answer any **three** questions. Each question carries **10** marks.

26. (a) Illustrate the metal-ligand bond theory

(b) Discuss the evidence for the nephelauxetic effect

27. Explain how TGA, DSC and DTA are useful in metal complex studies.

28. (a) What are molecular magnets? Discuss their components and applications

(b) What are metal nitrides? Discuss their structure and applications.

29. Explain the preparation, structure, properties and uses of heteropolyacids of molybdenum.

30. Explain the Composition of the atmosphere.

(3 × 10 = 30 Marks)

