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Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, March 2023

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1141 : INORGANIC CHEMISTRY I

(2020 Admission Onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries **1** mark.

1. Explain Heisenberg's uncertainty principle.
2. State Hund's rule.
3. Write Schrodinger wave equation and explain the terms.
4. What is water gas?
5. Explain why ionization enthalpy decreases down in a group?
6. Which is the element used in xerography?
7. Give two examples for Lewis acids.
8. Second group elements are called as alkaline earth metals. Give reason?
9. What is acid rain?
10. Mention the names of any two biodegradable polymers.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. Each question carries **2** marks.

11. Give de-Broglie equation and explain the terms.

12. What are the limitations of Bohr model of atoms?

13. Explain diagonal relationship with an example.

14. What are the isotopes of hydrogen? Mention one uses each.

15. Explain inert pair effect.

16. Compare the thermal stability of various oxides of nitrogen.

17. Explain the Lowery-Bronsted concept of acid and bases.

18. What is photochemical smog?

19. Explain why alkali metal solutions in liquid ammonia are coloured?

20. Write HSAB principle.

21. Explain the Indian Standard of drinking water.

22. What is entrophication? Write the reason for entrophication.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. Describe the Davisson and Germer experiment. Verification of wake nature of electrons.

24. Discuss the anomalous behaviour of first element with other elements in a group.

25. Compare the solubility and stabilities of alkaline earth metal sulphates.

26. Give an account of cesium in photo voltaic cell and lithium battery.

27. Discuss Arrhenius and Zux-Flood concepts of acids and bases.

28. Explain levelling effect with an example.

29. Differentiate between BOD and COD.

30. Write short note on management of air pollution.

31. Discuss the duties and responsibilities of Pollution Control Board.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. What is meant by electronegativity? Discuss briefly any three electronegativity scales.

33. (a) Discuss the trend in the following aspects of p-bock elements in a group and in a period

    (i) Acidic and basic character of oxides

    (ii) Oxidizing and reducing properties of elements **10**

    (b) Write short note on flame colouration. **5**

34. Write an essay on reactions of metal ions in non aqueous solvents with respect to liquid ammonia, liquid HF and liquid SO_2.

35. What are the various sources of water pollution? Discuss any three methods for the treatment of industrial waste water.

(2 × 15 = 30 Marks)