FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS–UG)

Chemistry

CHE 5B 06—INORGANIC CHEMISTRY—III

Time : Three Hours   Maximum : 80 Marks

Section A

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

1. Which is the most common isotope of Hydrogen ?

2. Diborane on hydrolysis yields ——————.

3. Formula of Bleaching powder is ——————.

4. Example of an Orthosilicate is ——————.

5. Silicon rubbers are also known as ——————.

6. Maddrell's salts are polymetaphosphates of ——————.

7. The element which consume a pollutant are known as ——————.

8. Formula of Paraperiodic acid is ——————.

9. Name a green house gas.

10. Structure of $AlCl_3$ is ——————.

(10 × 1 = 10 marks)

Section B

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

11. Discuss the structure of Diborane.

12. Beryllium shows covalency whereas other members of the family show electrovalency.

13. Write S.N. on BOD.

14. Define solubility product with an example.

15. Give a brief description of oxoacids of Nitrogen.

16. Name the Halogens and give their electronic configuration.

17. Discuss the structure of ClF_3.

Turn over

18. How is XeF_4 prepared ?

19. How would you account for the different colours produced by alkaline earth metals in the Bunsen flame ?

20. Explain the term polarisation of an anion.

21. Discuss the variation of oxidation states of elements as we move from left to right in a period.

22. What are Pseudohalides ?

(10 × 2 = 20 marks)

Section C

*Answer any **five** questions.*
Each question carries 6 marks.

23. Discuss the general trends in Group I with respect to :

    (i)   Melting point.   (ii)   Density.

    (iii) Ionisation energy.   (iv)   Atomic and Ionic radii.

24. Write SN on co-precipitation.

25. How are determinate and indeterminate errors classified ? How are they detected and corrected ?

26. Discuss the gradation in properties of elements of group 13 with respect to (a) electron affinity ; (b) metallic character.

27. What are Carbides ? How do we classify them ?

28. What is thermal pollution ?

29. What are the limitations of liquid ammonia as solvent ?

30. What is meant by the terms–sample, sample population and population mean ? How are sample mean and population mean determined ?

(5 × 6 = 30 marks)

Section D

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

31. (a) What is Smog ? What is the difference between classical smog and photochemical smog ? What are the adverse effects of photochemical smog ?

(6 marks)

    (b) Write S.N. on green house effect.

(4 marks)

32. (a) What is Inert pair effect ? Discuss. (4 marks)

    (b) What are Carboranes ? How are Carboranes classified ? (6 marks)

33. (a) What are the advantages and disadvantages of liquid SO_2 as solvent ? (4 marks)

    (b) What are the advantages and disadvantages of liquid NH_3 as solvent ? (4 marks)

    (c) What do you understand by Ionising and non-ionising solvents ? Give examples.

    (2 marks)

34. (a) Write S.N. on anomalous behavior of oxygen. (4 marks)

    (b) Compare and contrast properties of Aluminium and Beryllium. (6 marks)

[2 × 10 = 20 marks]