



(Pages : 3)

**D – 5050**

Reg. No. : .....

Name : .....

**First Semester B.Sc. Degree Examination, February 2018**  
**First Degree Programme under CBCSS**

**CHEMISTRY**

**Core Course – CH 1141 – Inorganic Chemistry – I**  
**(2017 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer **all** questions in **one** word/**one** sentence. **Each** question carries **1** mark.

1. Name the lines obtained in the visible region of hydrogen spectrum.
  2. Write the de Broglie's equation and explain the terms in it.
  3. Represent autoionisation of HF.
  4. What is solvolysis reaction ?
  5. Name the major pollutants in air.
  6. What are matter waves ?
  7. What is active hydrogen ?
  8. Give an example for a conjugate acid base pair.
  9. What are hydrides ?
  10. Define ionization enthalpy.
- (1×10=10 Marks)**

**SECTION – B**

Answer **any 8** questions. **Each** question carries **2** marks.

11. What is meant by the term wave function ? What is its significance ?
12. What are protic and aprotic solvent ? Is liquid HF a protic and aprotic solvent ?

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**D – 5050**

-2-

13. Strong oxidizing agents do not exist in liquid ammonia. Why ?
14. What is meant by covalent radius ? How is it different from ionic radius ?
15. What is diagonal relationship ? Give example.
16. What are the toxic effects of CO ?
17. Name two types of water pollutants.
18. Write notes on greenhouse effect.
19. What is heavy water ? How is it prepared ?
20. Write a note on the formation of photochemical smog.
21. What is meant by nodal plane ? Illustrate with example.
22. Differentiate between orbit and an orbital.

**(2×8=16 Marks)****SECTION – C**

Answer **any 6** questions. **Each** question carries **4** marks.

23. Discuss the general characteristics of a solvent.
24. Describe Pauling's electronegativity scale.
25. What is de Broglie wave length ? Calculate the wave length associated with a bullet of mass 1 g travelling with a velocity of  $3 \times 10^4 \text{ cm s}^{-1}$ .
26. What are quantum numbers ? Give the significance of each quantum number.
27. Explain hydrogen bonding and its consequence.
28. What happens when acetic acid is dissolved in liquid ammonia ?
29. What are the detrimental effects of fertilizers ?
30. Give one method of controlling  $\text{SO}_2$  pollution.
31. State Heisenberg uncertainty principle. Give its significance.

**(4×6=24 Mark)**





## SECTION – D

Answer **any 2** questions. **Each** question carries **15** marks.

32. a) Explain auto ionization of liquid ammonia.  
b) Write a note on the dissolution of alkali metals in liquid ammonia and the properties of the solutions.
33. Discuss the variation in atomic and ionic radii, ionization enthalpy and electronegativity with increasing atomic number in a period and in a group.
34. a) Compare the solubility products of hydroxides and sulphates of alkaline earth metals.  
b) Explain the application of hydrogen as fuel.  
c) What is ortho and para hydrogens ?
35. a) Explain the harmful effect of plastic and long term use of fertilisers.  
b) Give an account of the treatment of industrial waste water. **(2×15=30 Marks)**
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