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**D – 5004**

Reg. No. : .....

Name : .....

**First Semester B.Sc. Degree Examination, February 2018****First Degree Programme under CBCSS****CHEMISTRY****Core Course – I****CH 1141 : Inorganic Chemistry – I****(2013 – 2016 Admissions)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer **all** questions. Very short answer type, maximum **two** sentences. **Each** question carries **1** mark.

1. How was the wave nature of electrons proved first ?
2. Calculate the momentum of a particle which has a de Broglie wavelength of 0.1 nm.
3. What are metallochromic indicators ? Give one example.
4. Explain solubility product.
5. What is gas chromatography ?
6. Mention two applications of ion exchange resins.
7. Give two adverse effects of photochemical smog.
8. List the five primary pollutants in air.
9. What are the hazards of heavy metal pollution of drinking water ?
10. What is the significance of decrease in DO of a water sample ?

**SECTION – B**

Answer **any eight** questions. Short answer type. **Not** to exceed **one** paragraph. **Each** question carries **2** marks.

11. Name the four major structural classes of pesticides.
12. Define COD. What is its significance ?
13. How can we reduce pollution from SO<sub>x</sub> ?
14. Explain the term Green house effect.
15. Give the principle of adsorption column chromatography.

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16. What is  $R_f$  value ? Mention its significance.
17. Distinguish between iodometry and iodimetry.
18. What are redox titrations ? Give one example.
19. Calculate the percentage of ionic character in HF, given the electronegativity of H and F are 2.2 and 4.0 respectively.
20. Write down the electronic configuration of a) Cu b) Cd.
21. Derive the de Broglie relation.
22. What was the impact of uncertainty principle on Bohr atom model ?

**SECTION – C**

Answer **any six** questions. Short essay type-**maximum 120** words. **Each** question carries **4** marks.

23. Write a note on the environmental aspects of ozone layer.
24. Explain the source and effects of particulates in atmosphere.
25. How is acid rain formed ? What are its hazards ?
26. Write a short essay on the segments of environment.
27. Briefly explain the principle and procedure of double burette titrations.
28. Explain the principle of argentometric titrations.
29. How can you calibrate a burette ?
30. What are interfering anions ? Give an example for this and show how it can be eliminated.
31. Explain the Paulings scale of electronegativity.

**SECTION – D**

Answer **any two** questions. Long essay type. **Each** question carries **15** marks.

32. Explain how elements are classified into different blocks in periodic table. Give the general characteristics of each block.
  33. Write an essay on the various aspects of gravimetry.
  34. Write notes on :
    - a) soil pollution
    - b) thermal pollution and
    - c) radioactive pollution.
  35. State and explain Schrodinger wave equation. Obtain the solution for it in case of a particle in a 3-dimensional box.
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