Chemistry - 1st year
IPE Model Paper - 2

Instructions to Candidate:

1) Answer **all** questions from Section - A. Answer any six questions in Section - B and any two questions in Section - C.
2) In Section - A, questions from Sr. Nos. 1 to 10 are of "V ery Short Answer Type" . Each question carries **two** marks. Every answer may be limited to 2 or 3 sentences. Answer all these questions at one place in the same order.
3) In Section - B questions from Sr. Nos. 11 to 18 are of "S hort Answer Type". Each question carries **four** marks. Every answer may be limited to 50 words.
4) In Section - C questions from Sr. Nos. 19 to 21 are of "L ong Answer Type'. Each question carries **eight** marks. Every answer may be limited to 300 words.
5) Draw labelled diagrams wherever necessary for questions in Section - B and C.

SECTION - A

I. Answer all questions. ***10 x 2 = 20***

1. What is functional isomerism? Give an example.
2. What is Eutrophication?
3. Give the formulae of

   a. Tincal b. Colemanite
4. What is the importance of Ca^{+2} in the functioning of the cell?
5. What is deuterolysis? Give an equation for deuterolysis.
6. What are disproportionation reactions? Give example.
7. What is Boltzmann's constant? Give its value.
8. Define hydrogen bond. Is it weaker or stronger than vander Waals forces?
9. What are COD and BOD?
10. What is hybridisation? Mention the hybridisation involved by the Boron in Borontriflouride.

SECTION - B

II. Answer ANY SIX questions. ***6 x 4 = 24***

11. Define Graham's Law of diffusion. 240 cc of SO_2 gas diffused through a porous membrane in 20 minutes. Under similar conditions, 720 cc of another gas diffused in 30 minutes. Find the molecular mass of the gas.

12. Write about Dewar's method for the separation of noble gases from their mixture.

13 Explain the properties of graphite in terms of its structure. Mention the uses of graphite.

14. Explain with a suitable examples borax bead test.

15. A carbon compound contains 12.8% carbon, 2.1% hydrogen, 85.1% bromine. The molecular weight of the compound is 187.9. Calculate the molecular formula

16. Describe electrolytic method for the preparation of H_2O_2

17. Explain the preparation of NaOH by Castner- Kellner process.

18. Write a short note on co-ordinate covalent bond.

SECTION - C

III. Answer ANY TWO questions. ***2 x 8 = 16***

19. State the postulates of Bohr's atomic model. Explain the different lines in various series of hydrogen spectrum

20. Explain how the elements are classified into s,p,d and f - block elements in the periodic table and give the advantages of this kind of classification.

21. Describe two methods of preparation of ethylene. Give equation for the reactions of ethylene with the following

a. Ozone
b. Hypohalous acid
c. Cold and dil.alk.$KMnO_4$
d. Heated with O_2 at high pressures