

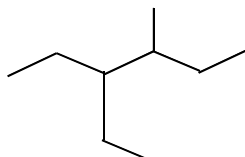
I YEAR CHEMISTRY QUESTION PAPER – MARCH 2011

SECTION - A

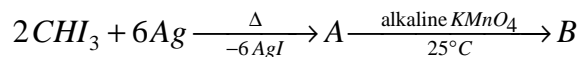
I. Answer all the following :

10 × 2 = 20

1. Write any two effects of polluted water.
2. Write the IUPAC name of the organic compound given below.



3. Calculate kinetic energy of 2 moles of O_2 gas at $27^\circ C$ ($R = 2 \text{ cal/mole-K}$)
4. What are the effects of acid rains?
5. Name the products A and B formed in the following reactions:



6. What is shielding effect ? How does it effect the IP values?
7. In how many stages plaster of paris sets to a hard mass? Write equation.
8. Calculate the oxidation numbers of Mn in MnO_4^- ion and Nitrogen in NO_3^- ion.
9. How heavy water reacts with calcium carbide?
10. What type of chemical bond will be formed between K and Br atoms, if electronegativity of K is 0.8 and Br is 2.8?

SECTION - B

II. Answer any six of the following:

6 × 4 = 24

11. How the IP values vary in group as well as in period? Explain.
12. Give any two oxidation properties of H_2O_2
13. Deduce Boyle's law and Graham's law of diffusion from kinetic gas equation.

14. An organic compound on analysis was found to contain 16.27% carbon, 0.67% hydrogen and 72.2% chlorine. Remaining is oxygen. The vapour density of the compound is equal to 73.75. Calculate the empirical formula and molecular formula of organic compound.
15. How does NaOH react with following compounds? Write chemical equations.
(a) Zn metal (b) NH_4Cl salt
16. Explain the structure of Diborane.
17. Compare the structure of Diamond and Graphite.
18. Write about Dewar's method for the separation of noble gases from their mixture.

SECTION - C

III. Answer any two of the following:

2 × 8 = 16

19. (a) State the postulates of Bohr's atomic model.
(b) What will be the de - Broglie wavelength of a ball of mass 0.1 kg moving with a velocity of 10 m/s ? ($h = 6.626 \times 10^{-34}\text{ Js}$)
20. Define "Lattice energy" of crystals. Discuss Born – Haber cycle with reference to NaCl.
21. How do you get Benzene from acetylene? How benzene reacts with
(a) Cl_2 (Chlorine) (b) R – X (alkyl halide) (c) O_3 (ozone)