

SECTION - A

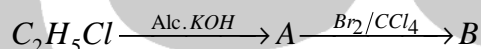
I. Answer all the following:

10 × 2 = 20

1. What are the coordination numbers of NaCl and CsCl crystals?
2. Which gas diffuses faster among N_2 , O_2 , CH_4 gases? Why?
3. Why gas H_2O higher boiling point than HF?
4. What volume of CO_2 is obtained at STP by heating 10gms of $CaCO_3$?
5. What is Deuterolysis? Give an example of deuterolysis.
6. Write the names and formulae of two minerals of Barium.
7. Write the structures of the following compounds :

(a) 1, 2 – ethane diol (b) 2 – amino – 3 – hydroxyl propanoic acid

8. Write the names of the products A and B formed in the following reaction :



9. What is the harm caused by CFCs?
10. What are COD and BOD?

SECTION - B

II. Answer any six of the following :

6 × 4 = 24

11. Nitrogen in Ammonia undergoes sp^3 hybridization, the bond angle is not $109^\circ 28'$. Explain.
12. Define RMS velocity. Calculate the RMS velocity of CO_2 at $27^\circ C$
13. 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.
[C, H, Br atomic weights respectively 12, 1, 80]

14. Give four important oxidation properties of Hydrogen peroxide with equations.
15. Describe Nelson's process for the manufacture of sodium hydroxide.
16. Explain the structure of Diborane.
17. Graphite is a conductor of electricity while Diamond is not. Explain.
18. Explain the structure of XeO_3 and XeO_4

SECTION - C

III. Answer any two of the following :

2 × 8 = 16

19. Define first and second ionization potentials. Why is second ionization potential greater than the first ionization potential ? Explain four factors effecting ionization potential values of elements.
20. State important postulates of Bohr's atomic theory. Derive the equation for calculating the radius of nth orbit in hydrogen atom.
21. Write any two methods for the preparation of Benzene. How does Benzene. How does Benzene react with the following reagents?
 - (a) CH_3Cl / Anhydrous $AlCl_3$
 - (b) O_3 / Zn, H_2O