I YEAR CHEMISTRY IPE QUESTION PAPER – MARCH 2009

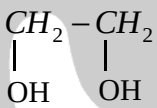
SECTION - A

I. Answer all the following : **10 × 2 = 20**

1. Find the volume of 3gm of H_2 at STP.
2. Calculate the oxidation number of oxygen in the following.

   i) O_2 ii) OF_2
3. What is the cause of hardness of water ?
4. Why the carbide of Be is called Methanide ?
5. Graphite is good conductor. Explain.
6. Write an equation for the reaction of SiO_2 with quick lime.
7. Explain the Nalgonda Defluoridation technique.
8. How methyl benzene is prepared from Benzene ?
9. What happens when CO concentration is increased in atmosphere ?
10. Write the names of the following compounds according to IUPAC rules.

   (a)



   (b) CH_3COCH_3

SECTION - B

II. Answer any six of the following : **6 × 4 = 24**

11. What is Joule – Thomson effect ?

    If 3.2 grams of gas occupies 550cc of volume at $22^{\circ}C$ and 770mm of Hg pressure, then find the molecular mass of the gas.

12. Balance the following equation in acidic medium by ion – electron method.

$$MnO_4^- + SO_3^{2-} \longrightarrow Mn^{+2} + SO_4^{2-}$$

13. Write any two oxidation and reduction reactions of H_2O_2
14. What is Causticization ? How is it useful in the preparation of caustic soda ?
15. Explain the orbital structure of Diborane.

16. Deduce the structure of XeO_3 on the basis of VBT.

17. Discuss the conformation of Ethane.

18. $CH_2 = CH_2 \xrightarrow[CCl_4]{Br_2} A \xrightarrow{\text{alc.KOH}} B \xrightarrow{Br_2} C$

Give the equations and names of A, B, C

SECTION - C

III. Answer any two of the following: **2 × 8 = 16**

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

20. Define first and second ionization potentials. Write any four factors that effect on ionization potential values.

21. What is Hydrogen bond ? Draw the molecular orbital diagram of N_2 molecule and write its bond order.