

**CHEMISTRY, Paper – I****(English Version)**

Time : 3 Hours

Max. Marks : 60

**Note : Read the following instructions carefully.**

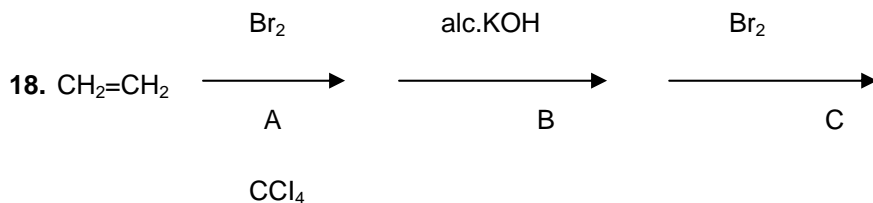
- (i) Answer **all** the questions of **Section - A**, Answer **ANY SIX** questions in **Section - B** and **ANY TWO** questions in **Section - C**.
- (ii) In **Section-A**, questions from Sr. Nos. **1 to 10** are of very short answer type. Each question carries **TWO** marks. Every answer may be limited to two or three sentences. Answer all these questions at one place in the same order.
- (iii) In **Section-B**, questions from Sr. Nos. **11 to 18** are of short answer type. Each question carries **FOUR** marks. Every answer may be limited to 75 words.
- (iv) In **Section-C**, questions from Sr. Nos. **19 to 21** are of Long answer type. Each question carries **EIGHT** marks. Every answer may be limited to 300 words.
- (v) Draw labeled diagrams wherever necessary for questions in **Sections-B** and **C**.

**SECTION – A****10x2 =20****Note:-** Answer **all** the questions.

1. Find the volume of 3 H<sub>2</sub> at STP.
2. Calculate the oxidation number of Oxygen in the following.  
(i) O<sub>2</sub>      (ii) OF<sub>2</sub>
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<sub>2</sub> 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)  $\begin{array}{cc} \text{CH}_2 & \text{---} & \text{CH}_2 \\ | & & | \\ \text{OH} & & \text{OH} \end{array}$   
(b) CH<sub>3</sub>COCH<sub>3</sub>

**SECTION – B****6x4=24**Note: - Answer **ANY SIX** questions.

11. What is joule – Thomson effect?  
If 3.2 grams of gas occupies 550 cc. of volume at 22°C and 770 mm. of Hg pressure, then find the molecular mass of the gas.
12. Balance the following equation in acidic medium by ion-electron method:  $\text{MnO}_4^- + \text{SO}_3^{2-} \rightarrow \text{Mn}^{2+} + \text{SO}_4^{2-}$ .
13. Write any two Oxidation and Reduction reactions of  $\text{H}_2\text{O}_2$ .
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  $\text{XeO}_3$  on the basis of VBT.
17. Discuss the conformation of Ethane.



Give the Equations and names of A, B, C.

**SECTION- C****2x8= 16**Note:- Answer **ANY TWO** questions.

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  $\text{N}_2$  molecule and write its bond order.

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