

pressure is released. Cylinders of butane are used in the homes. Butane is also used in portable torches and gas lighters.

**Q.45 Give few physical properties of alkenes.**

**Ans.**

- (i) The first member of alkenes is ethane. It is a colourless gas with pleasant odour.
- (ii) Alkenes are non-polar therefore; they are insoluble in water but soluble in organic solvent.
- (iii) The first member of the series ethane is slightly less dense than air.

### Multiple Choice Questions

**1. Which one of these hydrocarbon molecules would have no effect on an aqueous solution of bromine?**

- (a)  $\text{CH}_4$                       (b)  $\text{C}_{10}\text{H}_{20}$
- (c)  $\text{C}_2\text{H}_4$                     (d)  $\text{C}_2\text{H}_2$

**2. If an organic compound has 4 carbon atoms, all singly bonded, it will have the following characteristics except one**

- (a) it will be saturated hydrocarbon
- (b) it will have 8 hydrogen atoms
- (c) its name will be n-butane.
- (d) it will be least reactive

**3. The reduction of alkyl halides takes place in the presence of**

- (a)  $\text{Zn}/\text{HCl}$                       (b)  $\text{Na}/\text{HCl}$
- (c)  $\text{Mg}/\text{HCl}$                     (d)  $\text{Cu}/\text{HCl}$

**4. Halogenation of methane produces following valuable chemical compounds used as solvents except:**

- (a) carbontetrachloride
- (b) chloroform
- (c) carbon black
- (d) chloromethane

**5. Incomplete combustion of alkanes produces**

- (a) carbon dioxide only
- (b) carbon monoxide only
- (c) carbon monoxide carbon black and water
- (d) carbon dioxide and carbon black

**6. Alkenes are prepared from alcohols by a process called**

- (a) dehydrogenation
- (b) dehalogenation
- (c) dehydration
- (d) dehydrohalogenation

**7. Dehydrohalogenation takes place in the presence of**

- (a)  $\text{NaOH}$  aqueous
- (b) alcoholic  $\text{KOH}$
- (c) aqueous  $\text{KOH}$
- (d) alcoholic  $\text{NaOH}$

**8. Oxidation of ethene with  $\text{KMnO}_4$  produces**

- (a) oxalic acid
- (b) glyoxal
- (c) ethene alcohol

(d) propene glycol

**9. Which one of these is a saturated hydrocarbon?**

- (a)  $C_2H_4$  (b)  $C_3H_6$   
(c)  $C_4H_8$  (d)  $C_5H_{12}$

**10. A hydrocarbon has molecular formula  $C_8H_{14}$ . What is the molecular formula of the next member of the same homologous series.**

- (a)  $C_9H_{18}$  (b)  $C_9H_{16}$   
(c)  $C_9H_{20}$  (d)  $C_9H_{12}$

**11. The molecular formulae of the first three members of the alkane hydrocarbons are  $CH_4$ ,  $C_2H_6$  and  $C_3H_8$ . What is the molecular formula for the eighth alkane member, octane, which is found in petrol?**

- (a)  $C_8H_8$  (b)  $C_8H_{16}$   
(c)  $C_8H_{18}$  (d)  $C_8H_{20}$

**12. One of the hydrocarbons reacts with one mole of hydrogen to form a saturated hydrocarbon. What formula could be of the X.**

- (a)  $C_3H_8$  (b)  $C_6H_{12}$   
(c)  $C_4H_{10}$  (d)  $C_7H_{16}$

**13. Dehydration of alcohols can be carried out with**

- (a) NaOH (b) KOH  
(c)  $H_2SO_4$  (d) HCl

**14. The end product of oxidation of acetylene is**

- (a) oxalic acid (b) glycol  
(c) glyoxal (d) none

**15. Dehalogenation of tetrahalides produces acetylene. This reaction takes place in the presence of**

- (a) sodium metal

- (b) zinc metal  
(c) magnesium metal  
(d) potassium metal

**16. Substitution reaction is the characteristics of**

- (a) alkanes (b) alkenes  
(c) alkynes (d) none of these

**17. Halogenation of alkanes in the presence of diffused sunlight takes place**

- (a) suddenly, only in one step  
(b) slowly in one step  
(c) in a series of step  
(d) fastly in two steps

**18. Which one of the following is a substitution reaction?**

- (a) halogenations of alkynes  
(b) halogenations of alkenes  
(c) halogenations of alkanes  
(d) bromination of alkene s

**19. The order of reactivity of hydrogen halides with alkenes is**

- (a)  $HI > HBr$   
(b)  $HBr > HI$   
(c)  $HCl > HBr$   
(d)  $HBr < HCl$

**20. Oxidation of alkenes produce**

- (a) glyoxal (b) glycol  
(c) oxalic acid (d) formic acid

**21. Which is the simplest alkane?**

- (a)  $CH_4$  (b)  $C_3H_8$   
(c)  $C_2H_2$  (d)  $C_2H_4$

**22. Carbon black is used in the manufacture of**

- (a) dry cleaning (b) shoe polishes  
(c) fertilizers (d) none of these

**23. Alkanes give reaction only**

- (a) addition (b) decomposition  
(c) substitution (d) displacement
- 24. Chemical formula of chloroform is**  
(a)  $\text{CH}_2\text{Cl}_2$  (b)  $\text{CH}_3\text{Cl}$   
(c)  $\text{CHCl}_3$  (d)  $\text{CCl}_4$
- 25. Alkenes are produced in large amounts by cracking of**  
(a) natural gas (b) petroleum  
(c) benzene (d) xylol
- 26. Traces of acetylene are present in coal gas about**  
(a) 0.06% (b) 0.08%  
(c) 1.1% (d) 90%
- 27. Which of the following gas is used in warfare?**  
(a) methane (b) ethane gas  
(c) mustard gas (d) none of these
- 28. Which one of the following is more reactive?**  
(a) methane (b) ethane  
(c) ethene (d) acetylene
- 29. Condensed formula of ethane is**  
(a)  $\text{C}_3\text{H}_8$  (b)  $\text{C}_2\text{H}_6$   
(c)  $\text{H}_3\text{CCH}_3$  (d) none of these
- 30. The general formula of alkynes is**  
(a)  $\text{C}_n\text{H}_{2n}$  (b)  $\text{C}_n\text{H}_{2n+2}$   
(c)  $\text{C}_n\text{H}_{2n-2}$  (d)  $\text{C}_n\text{H}_{2n+1}$
- 31. Alkanes do not react in**  
(a) diffused sunlight (b) bright sunlight  
(c) dark (d) none of these
- 32. Carbon tetra chloride is used in**  
(a) fertilizers (b) dry cleaning  
(c) metallurgy (d) anesthesia
- 33. The alkanes consisting of  $\text{C}_5$  to  $\text{C}_{10}$  are**  
(a) gases (b) liquids  
(c) solids (d) plasma

**34. Chloroform is used for**

- (a) anesthesia (b) fever  
(c) ink (d) toys

**35. Molecular formula of butyne is**

- (a)  $\text{C}_4\text{H}_6$  (b)  $\text{C}_3\text{H}_4$   
(c)  $\text{C}_4\text{H}_7$  (d)  $\text{C}_4\text{H}_8$

**36. Formula of glyoxal is**

- $\begin{array}{cc} \text{O} & \text{O} \\ || & || \end{array}$
- (a)  $\text{H} - \text{C} - \text{C} - \text{H}$
- $\begin{array}{c} \text{O} \\ || \end{array}$
- (b)  $\text{H} - \text{C} - \text{H}$
- (c)  $\text{H} - \text{CO} - \text{H}$
- (d) None of these

**37. Alkanes are least reactive compounds because they are**

- (a) saturated hydrocarbons  
(b) unsaturated hydrocarbons  
(c) both (a) and (b)  
(d) none of the above

**38. Which is present 85% in natural gas?**

- (a) Ethane (b) Propane  
(c) Methane (d) Butane

**39. Hydrogenation of alkenes and alkynes takes place at room temperature in the presence of**

- (a) Ni (b) Pt  
(c) Pd (d) Both a and b

**40. Which one is the formula of chloromethane**

- (a)  $\text{CH}_2\text{Cl}_2$  (b)  $\text{CCl}_4$

- (c)  $\text{CHCl}_3$  (d)  $\text{CH}_3\text{Cl}$
- 41. Which gas creates suffocation and causes death?**  
 (a)  $\text{CO}$  (b)  $\text{CO}_2$   
 (c)  $\text{SO}_3$  (d)  $\text{SO}_2$
- 42. In shoe polishes, which chemical is used**  
 (a) ethanol (b) methanol  
 (c) carbon black  
 (d) formaldehyde
- 43. In dry cleaning, which chemical is used**  
 (a) chloroform  
 (b) carbon tetrachloride  
 (c) acetaldehyde  
 (d) ethanol

- 44. some orchids attracts bees for pollination by producing**  
 (a) alkanes (b) alkenes  
 (c) alkynes (d) above all
- 45. Dehydration means removal of**  
 (a) water (b) halogen  
 (c) hydrogen (d) all above
- 46. Benzene is formed by the polymerization of**  
 (a) alkene (b) alkane  
 (c) acetylene (d)  $\text{CH}_4$
- 47. Ethylene is present in natural gas sometimes to the extent of**  
 (a) 10% (b) 20%  
 (c) 30% (d) 40%

### Answer Keys

1.	a	2.	b	3.	a	4.	c	5.	c
6.	c	7.	b	8.	c	9.	d	10.	b
11.	d	12.	d	13.	c	14.	c	15.	b
16.	a	17.	c	18.	c	19.	a	20.	b
21.	a	22.	b	23.	c	24.	c	25.	b
26.	a	27.	c	28.	d	29.	c	30.	c
31.	c	32.	b	33.	b	34.	a	35.	a
36.	a	37.	a	38.	c	39.	d	40.	d
41.	a	42.	c	43.	b	44.	a	45.	a
46.	c	47.	b						