

(c) $(\text{CH}_3)_2\text{CHC}\equiv\text{CH}$ (d) Either (a) or (c).

12. Which of the following reagents will distinguish between 1-butyne and 2-butyne?

- (a) Br_2/CCl_4 (b) $\text{AgNO}_3 + \text{NH}_4\text{OH}$
 (c) Dil. Cold KMnO_4 (d) KMnO_4

13. $\text{CH}\equiv\text{CH} \xrightarrow[\text{Pressure}]{\text{Ni}(\text{CN})_2} \text{X}$. Here X in the reaction

- (a) Benzene (b) Ethane
 (c) Cyclooctatetraene (d) Cyclohexane

14. Acetylene gives

- (a) White precipitate with AgNO_3 and red precipitate with Cu_2Cl_2
 (b) White precipitate with Cu_2Cl_2 and red precipitate with AgNO_3
 (c) White precipitate with both the reagents
 (d) Red precipitate with both the reagents

15. Which of the C - C bond is strongest

- (a) Formed by $sp^3 - sp^3$ hybridised carbon atoms (as in alkanes)
 (b) Formed by $sp^2 - sp^2$ hybridised carbon atoms (as in alkenes)
 (c) Formed by $sp - sp$ hybridised carbon atoms (as in alkynes)
 (d) All are equal

16. A gas decolourises bromine in CCl_4 and forms a precipitate with ammoniacal silver nitrate. The gas is

- (a) C_2H_2 (b) C_2H_4
 (c) C_2H_6 (d) CH_4

17. When acetylene reacts with HCl in the presence of HgCl_2 , the product is

- (a) Methyl chloride (b) Dichloroethane
 (c) Vinyl chloride (d) Ethylidene chloride

18. When treated with ammoniacal cuprous chloride, which one among the following forms copper derivative

- (a) C_2H_6 (b) C_2H_4
 (c) C_2H_2 (d) C_6H_6

19. Which of the following is used to distinguish ethylene and acetylene

- (a) Alkaline KMnO_4
 (b) Bromine water
 (c) Ammoniacal cuprous chloride
 (d) Conc. H_2SO_4

20. $\begin{array}{c} \text{CH} \\ || \\ \text{CH} \end{array}$ reacts with acetic acid in presence of Hg^{2+} to give

- (a) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}(\text{CH}_3\text{COO})_2 \end{array}$ (b) $\begin{array}{c} \text{CH}(\text{CH}_3\text{COO})_2 \\ | \\ \text{CH}(\text{CH}_3\text{COO})_2 \end{array}$

- (c) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_2(\text{CH}_3\text{COO}) \end{array}$ (d) None of these

21. Which will undergo reaction with ammoniacal AgNO_3

- (a) $\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{CH} - \text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_3 \\ \diagdown \\ \text{CH}_3 \end{array}$
 (b) $\text{CH}_3 - \text{CH} = \text{CH} - \text{C} \equiv \text{CH}$
 (c) $\text{CH}_3 - \text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$
 (d) $\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{CH}_3$
 (e) None

22. $\begin{array}{c} \text{CH} \\ ||| \\ \text{CH} \end{array} \xrightarrow{\text{O}_3 / \text{NaOH}} \text{X} \xrightarrow{\text{Zn} / \text{CH}_3\text{COOH}} \text{Y}$ 'Y' is

- (a) $\begin{array}{c} \text{CH}_2\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$ (b) $\text{CH}_3\text{CH}_2\text{OH}$
 (c) CH_3COOH (d) CH_3OH

23. What is the product when 2-butyne is treated with liquid NH_3 in presence of lithium

- (a) *n*-butane (b) *cis*-2-butene
 (c) *trans*-2-butene (d) 1-butene

24. Number of acidic hydrogen atoms in butyne-1 are

- (a) 2 (b) 3
 (c) 1 (d) 4

25. Addition of HCN to ethyne in presence of $\text{Ba}(\text{CN})_2$ as catalyst gives

- (a) 1, 1-dicyano ethane (b) Ethyl cyanide
 (c) Vinyl cyanide (d) Divinyl cyanide

26. Which of the following is weakly acidic

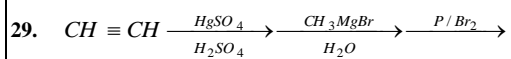
- (a) $\text{CH}_2 = \text{CH}_2$ (b) C_6H_6
 (c) $\text{CH}_3 - \text{C} \equiv \text{CH}$ (d) $\text{CH}_3 - \text{C} \equiv \text{C} - \text{CH}_3$

27. Acetylene can be obtained by the reaction

- (a) $\text{HCOOK} \xrightarrow{\text{electrolysis}}$
 (b) $\text{CHI}_3 + 6\text{Ag} + \text{CHI}_3 \xrightarrow{\Delta}$
 (c) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[443^\circ\text{C}]{\text{Conc. H}_2\text{SO}_4}$
 (d) $\text{Be}_2\text{C} + \text{H}_2\text{O} \rightarrow$

28. What happens when a mixture of acetylene and hydrogen is passed over heated Lindlar's catalyst

- (a) Ethane and water are formed
 (b) Ethylene is formed
 (c) Acetylene and ethane are formed
 (d) None of these

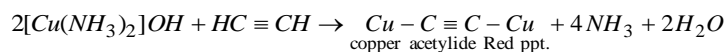
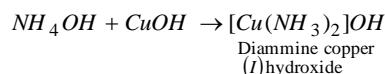
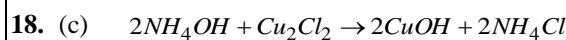
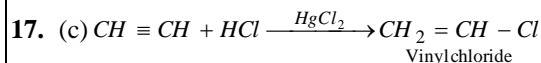
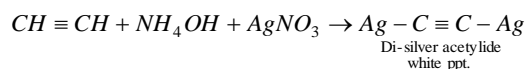
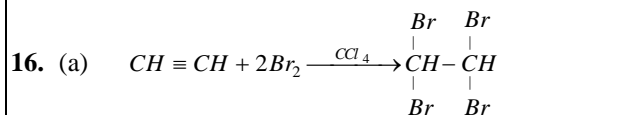


- (a) $CH_3CH(Br)CH_3$ (b) $CH_3CH_2CH_2Br$
(c) $CH_2 = CH - Br$ (d) $BrCH = CH - CH_3$

30. Carbide, which react with water to give propyne is

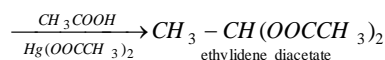
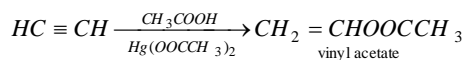
- (a) CaC_2 (b) SiC
(c) Mg_2C_3 (d) Al_4C_3
(e) Be_2C

1. (a) $\text{CH}_3 - \overset{\text{Cl}}{\underset{\text{Cl}}{\text{C}}} - \overset{\text{Cl}}{\underset{\text{Cl}}{\text{C}}} - \text{CH}_3 \xrightarrow{\text{Zn dust}} \text{CH}_3 - \text{C} \equiv \text{C} - \text{CH}_3$ (But -2-yne)
2. (b) $2\text{Mg}^{+2} (\bar{\text{C}} \equiv \text{C} - \text{C}^{3-}) \xrightarrow{\text{H}_3\text{O}^+} \text{Mg}(\text{OH})_2 + \text{CH} \equiv \text{C} - \text{CH}_3$ (Propyne)
3. (c)
4. (a) Most Acidic hydrogen is present in ethyne.
5. (a)
6. (c) $\text{CH}_3 - \text{C} \equiv \text{C} - \text{CH}_3 \xrightarrow[\text{Lindlar's}]{(1) \text{H}_2 / \text{Pd} / \text{CaCO}_3} \begin{array}{c} \text{H}_3\text{C} \quad \text{CH}_3 \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \\ \text{Cis} \end{array} \xrightarrow{\text{Br}_2} \text{(d}\ell\text{)} - 2, 3 \text{ dibromo butane}$
Anti addition
7. (d) $\text{H} - \text{C} \equiv \text{C} - \text{H} + \text{HO} - \text{Cl} \longrightarrow \begin{array}{c} \text{CH} = \text{CH} \\ | \quad | \\ \text{Cl} \quad \text{OH} \end{array} \xrightarrow{\text{HOCl}} \begin{array}{c} \text{H} \\ | \\ \text{Cl}_2\text{CH} - \text{C} - \text{O} - \text{H} \\ | \\ \text{OH} \\ \text{unstable} \end{array} \xrightarrow{-\text{H}_2\text{O}} \begin{array}{c} \text{H} \\ | \\ \text{Cl}_2\text{CH} - \text{C} = \text{O} \end{array}$
8. (b) 1-Butyne can be converted into 1-bromo-1-butene by antimarkownikoff. Addition of H-Br in presence of peroxide.
9. (b) $\text{CH}_3 - \text{CH}_2 - \text{C} \equiv \text{C} - \text{H} \xrightarrow{\text{HBr}} \text{CH}_3 - \text{CH}_2 - \underset{\text{Br}}{\text{C}} = \text{CH}_2 \xrightarrow{\text{HBr}} \text{CH}_3 - \text{CH}_2 - \overset{\text{Br}}{\underset{\text{Br}}{\text{C}}} - \text{CH}_3$
10. (a) $\text{H} - \text{C} \equiv \text{C} - \text{H} + \text{H}_2\text{O} \xrightarrow{\text{Hg}^{+2}} \begin{array}{c} \text{CH}_2 = \text{CH} \\ | \\ \text{OH} \end{array} \rightleftharpoons \text{CH}_3\text{CHO}$
11. (d)
12. (b) 1-butyne and 2-Butyne can be distinguish by ammonical silver nitrate solution.
13. (c) $4 \text{CH} \equiv \text{CH} \xrightarrow[\text{Pressure}]{\text{Ni}(\text{CN})_2} \text{Cyclo octatetraene}$
14. (a) $\text{CH}_3 \equiv \text{CH} + \text{AgNO}_3 \rightarrow \text{Ag} - \text{C} \equiv \text{C} - \text{Ag}$
(Ammonical) White ppt.
 $\text{CH}_3 \equiv \text{CH} + \text{CuCl}_2 \rightarrow \text{Cu} - \text{C} \equiv \text{C} - \text{Cu}$
(Ammonical) Red ppt.
15. (c) $sp - sp > sp^2 - sp^2 > sp^3 - sp^3$
Order of bond strength



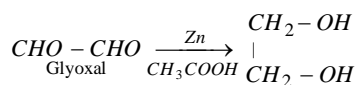
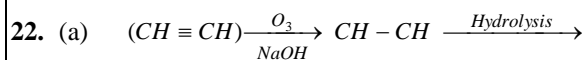
19. (c) Acetylene reacts with ammonical cuprous chloride to give brown ppt where as ethylene does not give this reaction.

20. (a) Reaction of acetic acid with acetylene is catalysed by Hg^{2+} salts.



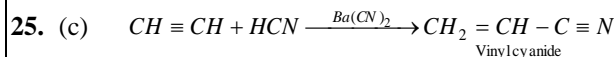
21. (b) $CH_3 - CH = CH - C \equiv C - H$. Acidic hydrogen

(H atom attached to triple bond) is present therefore it gives reaction with ammoniacal $AgNO_3$.



23. (c) Reduction of alkynes with liquid NH_3 / Li gives trans alkenes.

24. (c) The hydrogen atom which is attached to triple bond is acidic.



26. (d) $CH_3 - C \equiv C - CH_3$ has not acidic character.

27. (b) Acetylene can be obtained by the reaction of silver and chloroform (or iodo form)

