CLASS XI CHE CH: 9

SET 3 – Alkynes (MCQs)

1. Alkynes are –
   a) Saturated hydrocarbons
   b) Unsaturated hydrocarbons
   c) Aromatic hydrocarbons
   d) Alcohols

2. The general formula of alkynes is –
   a) CnH2n+2
   b) CnH2n
   c) CnH2n–2
   d) CnHn

3. The first stable member of alkyne series is –
   a) Methyne
   b) Ethyne
   c) Propyne
   d) Butyne

4. Ethyne is commonly known as –
   a) Acetylene
   b) Ethylene
   c) Propylene
   d) Methane

5. The hybridisation of carbon in ethyne is –
   a) sp^3
   b) sp^2
   c) sp
   d) dsp^2

6. The number of σ and π bonds in ethyne molecule is –
   a) 3σ and 2π
   b) 2σ and 2π
   c) 3σ and 1π
   d) 5σ and 1π

7. The bond angle in ethyne is –
   a) 90°
   b) 120°
   c) 109.5°
   d) 180°

8. The triple bond consists of –
   a) Three σ bonds
   b) One σ and two π bonds

c) Two σ and one π bond
d) One π and one δ bond

9. Alkynes are also known as –
a) Paraffins
b) Acetylenes
c) Olefins
d) Aromatics

10. The IUPAC name of acetylene is –
a) Ethene
b) Ethyne
c) Ethane
d) Ethanol

11. The general formula C_4H_6 may represent –
a) Only one compound
b) Two compounds
c) Three compounds
d) Four compounds

12. 1-Butyne and 2-butyne are –
a) Chain isomers
b) Position isomers
c) Functional isomers
d) Tautomers

13. Ethyne can be prepared by action of water on –
a) Calcium carbide
b) Sodium acetate
c) Calcium carbonate
d) Sodium carbide

14. The reaction of calcium carbide with water gives –
a) Ethene
b) Ethyne
c) Propene
d) Butane

15. Calcium carbide reacts with water to form –
a) $Ca(OH)_2$ and C_2H_2
b) CaO and C_2H_4
c) $CaCO_3$ and CO_2
d) $Ca(OH)_2$ and CH_4

16. Ethyne is also produced during –
a) Combustion of methane
b) Partial combustion of methane

c) Oxidation of ethane
d) Hydrolysis of ethene

17. Which of the following reagents can convert ethene into ethyne?
a) Bromine
b) $NaNH_2$
c) Cl_2
d) H_2

18. Alkynes can be prepared by dehydrohalogenation of –
a) Alkyl halides
b) Dihalides
c) Alcohols
d) Aldehydes

19. Vicinal dihalides on treatment with alcoholic KOH form –
a) Alkanes
b) Alkenes
c) Alkynes
d) Alcohols

20. The reagent used for formation of alkyne from vicinal dihalide is –
a) Aqueous KOH
b) Alcoholic KOH
c) $NaNH_2$ in liquid ammonia
d) Dilute H_2SO_4

21. Which reaction involves removal of two molecules of HX?
a) Dehydrohalogenation
b) Dehydration
c) Dehydrogenation
d) Dehalogenation

22. Ethyne on hydrogenation gives –
a) Ethane
b) Ethene
c) Methane
d) Propane

23. Hydrogenation of ethyne in presence of Lindlar's catalyst gives –
a) Ethane
b) Ethene
c) Acetone
d) Benzene

24. Lindlar's catalyst is –
a) $Pd–BaSO_4$
b) Pt–BaO

c) $Ni–Al_2O_3$
d) Fe–Cu

25. Ethyne on partial reduction with sodium in liquid ammonia gives –
a) cis-ethene
b) trans-ethene
c) ethane
d) propane

26. Ethyne reacts with chlorine to form –
a) $C_2H_2Cl_2$
b) $C_2H_2Cl_4$
c) $C_2H_4Cl_2$
d) C_2Cl_2

27. On oxidation, ethyne gives –
a) CO_2 and H_2O
b) CO
c) C
d) CH_3OH

28. Ethyne reacts with ammoniacal Cu_2Cl_2 to form –
a) Cu_2C_2 (red ppt)
b) Cu_2O
c) CuCl
d) Cu_2S

29. The red precipitate in above reaction confirms –
a) Alkene
b) Alkyne
c) Terminal alkyne
d) Aromatic compound

30. Terminal alkynes react with $AgNO_3/NH_3$ to form –
a) White ppt
b) Yellow ppt
c) Red ppt
d) Brown gas

31. The silver acetylide formed in Q30 indicates –
a) Terminal alkyne
b) Internal alkyne
c) Alkene
d) Aromatic

32. The acidity of terminal alkynes is due to –
a) Presence of π bond
b) sp hybridisation

c) Presence of H–C bond
d) High electronegativity of carbon

33. Which is the strongest acid among the following?
a) Alkane
b) Alkene
c) Alkyne
d) Benzene

34. Acetylene is acidic because –
a) It contains hydrogen
b) sp hybridised carbon is electronegative
c) It forms carbocation easily
d) It is polar

35. The conjugate base of acetylene is –
a) $C_2H_2^-$
b) C_2H^-
c) C_2^{2-}
d) H^-

36. Which of the following can be used to distinguish between ethene and ethyne?
a) Bromine water
b) Ammoniacal Cu_2Cl_2
c) NaOH
d) Lime water

37. Ozonolysis of ethyne gives –
a) HCHO
b) HCOOH
c) CH_3CHO
d) CO_2 and H_2O

38. On oxidation with $KMnO_4$, acetylene gives –
a) Oxalic acid
b) Acetic acid
c) Ethanol
d) CO_2

39. Ethyne undergoes addition of water in presence of H_2SO_4 and $HgSO_4$ to give –
a) Ethanol
b) Acetaldehyde
c) Acetone
d) Formic acid

40. The reaction of alkyne with water in presence of H_2SO_4 and $HgSO_4$ is called –
a) Hydration
b) Hydroboration

c) Polymerisation
d) Dehydration

41. The product formed when propyne reacts with water and $H_2SO_4/HgSO_4$ is –
a) Acetaldehyde
b) Acetone
c) Ethanol
d) Propanal

42. The addition of HBr to ethyne gives –
a) Vinyl bromide
b) Ethyl bromide
c) 1,2-dibromoethane
d) Bromomethane

43. Polymerisation of acetylene gives –
a) Benzene
b) Cyclohexane
c) Propane
d) Ethene

44. The catalyst used in polymerisation of acetylene to benzene is –
a) Cu tube at 600°C
b) Pd catalyst
c) Al_2O_3
d) Ni at 400°C

45. Oxidation of acetylene with hot $KMnO_4$ gives –
a) $CO_2 + H_2O$
b) CH_3CHO
c) CH_3COOH
d) HCHO

46. The reaction between sodium and acetylene gives –
a) Sodium acetylide
b) Sodium chloride
c) Sodium acetate
d) Sodium carbonate

47. Ethyne on combustion in oxygen gives –
a) Blue flame
b) Yellow flame
c) Red flame
d) Colorless flame

48. Oxy-acetylene flame is used in –
a) Welding and cutting metals
b) Cooking

c) Glass polishing
d) Fuel cells

49. Which alkyne has four carbon atoms?
a) Butyne
b) Propane
c) Butane
d) Ethene

50. The number of structural isomers possible for C_4H_6 is –
a) 1
b) 2
c) 3
d) 4

✅ Answers – SET 3

1–b	2–c	3–b	4–a	5–c	6–a	7–d	8–b	9–b	10–b
11–c	12–b	13–a	14–b	15–a	16–b	17–b	18–b	19–c	20–c
21–a	22–a	23–b	24–a	25–b	26–b	27–a	28–a	29–c	30–b
31–a	32–b	33–c	34–b	35–b	36–b	37–d	38–a	39–b	40–a
41–b	42–a	43–a	44–a	45–a	46–a	47–a	48–a	49–a	50–b