

- During electrophilic substitution of benzene, the intermediate species involved is
  - Carbanion
  - Carbocation
  - Free radical
  - none of these
- In the reaction
 
$$\text{C}_6\text{H}_6 + \text{Cl}_2 \longrightarrow \text{C}_6\text{H}_5\text{Cl} + \text{HCl}$$
 (chlorobenzene)  
 The attacking reagent is
  - $\text{Cl}_2$
  - $\text{Cl}^+$
  - $\text{Cl}^-$
  - $\text{FeCl}_4^-$
- Methyl bromide when heated with zinc in a closed tube produces
  - methane
  - ethane
  - ethyne
  - methanol
- During the preparation of ethane by Kolbe's electrolytic method using inert electrodes the pH of the electrolyte
  - increases progressively as the reaction proceeds
  - decreases progressively as the reaction proceeds
  - remains constant throughout the reaction
  - may decrease if the concentration of the electrolyte is not very high
- Nitrobenzene can be prepared from benzene by using a mixture of conc.  $\text{HNO}_3$  and conc.  $\text{H}_2\text{SO}_4$ . In the nitrating mixture,  $\text{HNO}_3$  acts as a
  - base
  - acid
  - reducing agent
  - catalyst.
- When a mixture of methane and oxygen is passed through heated molybdenum oxide, the main product formed is
  - methanoic acid
  - ethanal
  - methanol
  - methanol
- which of the following can't be used in Friedal-Crafts reactions?
  - $\text{FeCl}_3$
  - $\text{BF}_3$
  - $\text{AlCl}_3$
  - $\text{NaCl}$
- Which one of the following has the minimum boiling point?
  - n-Butane
  - Isobutane
  - 1-Butene
  - 1- Butyne
- On mixing certain alkane with chlorine and irradiating it with ultraviolet light, it forms only one monochloroalkane. The alkane is:
  - isopentane
  - neopentane
  - propane
  - pentane
- Pure methane can be produced by
  - Wurtz reaction
  - Kolbe's electrolytic method
  - Soda-lime decarboxylation
  - reducetion with  $\text{H}_2$

11. Which of the following species participate in sulphonation of benzene ring?  
a)  $\text{H}_2\text{SO}_4$                       b)  $\text{HSO}_3^-$   
c)  $\text{SO}_3$                               d)  $\text{SO}_2^-$
12. A gas decolourises alkaline  $\text{KMnO}_4$  solution but does not give precipitate with  $\text{AgNO}_3$ . It is  
a)  $\text{CH}_4$                       b)  $\text{C}_2\text{H}_4$                       c)  $\text{C}_2\text{H}_2$                       d)  $\text{C}_2\text{H}_6$
13. In its reaction with silver nitrate acetylene shows  
a) Oxidising property                      b) Reducing property  
c) Basic proerty                      d) Acidic property
14. Benzene is obtained by fractional distillation of  
a) Heavy oil                      b) Anthracene oil  
c) Middle oil                      d) Light oil
15. The function of  $\text{AlCl}_3$  in Friedal Craft's reaction is  
a) to absorb water                      b) to absorb  $\text{HCl}$   
c) to produce electrophile                      d) to produce nucleophile
16. Benzene does not undergo addition reaction easily because  
a) It has a cyclic structure                      b) Double bonds in it are very strong  
c) Resonance stabilised system is to be preserved  
d) It has six hydrogen atoms
17. The presence of unsaturation in organic compounds can be tested with  
a) Schiff's reagent                      b) Tollen's reagent  
c) Fehling's reagent                      d) Baeyer's reagent.
18. Reactions of alkanes with halogens is explosive in case of  
a)  $\text{F}_2$                       b)  $\text{Cl}_2$                       c)  $\text{Br}_2$                       d)  $\text{I}_2$
19. Most common reactions of benzene and its derivatives are  
a) Electrophilic addition reactions  
b) Electrophilic stustitution reactions  
c) Nucleophilic addition reactions  
d) Nucleophilic substitution reactions.
20. The most reactive hydrocarbon is  
a) Ethene                      b) Ethyne  
c) Ethane                      d) Methane
21. To a mixture of fuming  $\text{HNO}_3$  and conc.  $\text{H}_2\text{SO}_4$ , benzene was added. This mixture was heated for long time at  $100^\circ\text{C}$ . The main product is  
a)  $\text{C}_6\text{H}_5\text{NO}_2$                       b)  $\text{C}_6\text{H}_5\text{SO}_3\text{H}$   
c) 1,3,5-trinitrobenzene                      d) m-Dinitrobenzene

22. Vulcanized rubber resists
- a) Jerking motion                      b) cold temperature  
c) chemical corrosion                d) wear and tear due to friction.
23. In Buna-S, the symbol Bu stands for
- a) 1-Butene                                b) n-Butane  
c) 2-Butene                                d) Butadiene
24. The catalyst used in the manufacture of polyethene by Zeigler method is
- a) Titanium tetrachloride and triphenyl aluminium  
b) Titanium tetrachloride and triethyl aluminium  
c) Titanium dioxide  
d) Titanium isoperoxide
25. Which is most strained cycloalkane?
- a) Cyclohexane                          b) Cyclopropane  
c) Cyclobutane                          d) Cyclooctane
26. Most stable conformation of cyclohexane is
- a) Planar chair conformation  
b) Non planar chair conformation  
c) Planar boar conformation  
d) Non planar board conformation.
27. According to Baeyer's strain theory which among the following is highly stable?
- a) Cyclohexane                          b) Cycloheptane  
c) Cyclopentane                         d) None of these
28. Which of the following reagents can react with phenol to produce phenolphthalein ?
- a) phthalic anhydride /  $H_2SO_4$   
b) ethanoic anhydride /  $H_2SO_4$   
c)  $CO_2, CCl_4$   
d) Potassium phthalimide
29. The most acidic compound among the following is
- a) phenol                                  b) m-cresol  
c) p-Nitrophenol                        d) Picric acid
30. Identify the product Z in the following sequence of reaction
- $$\begin{array}{c} \text{NaOH } CO_2, 4-7\text{atm,} \\ \text{Phenol} \longrightarrow \text{X} \longrightarrow 410 \text{ K} \\ \text{H}_3\text{O}^+ \\ \text{Y} \longrightarrow \text{Z} \end{array}$$
- a) aspirin                                  b) salicylaldehyde  
c) benzoic acid                          d) salicylic acid.

31. Phenol, p-Methylphenol, m-Nitrophenol and p-Nitrophenol follows order of increasing acidic strength
- a) Phenol, p-Methylphenol, p-Nitrophenol, m-Nitrophenol
  - b) p-Methylphenol, Phenol, m-Nitrophenol, p-Nitrophenol,
  - c) p-Methylphenol, m-Nitrophenol, Phenol, p-Nitrophenol,
  - d) m-Nitrophenol p-Nitrophenol, Phenol, p-Methylphenol,
32. In order to get Bakelite from phenol which of the following reagent is required?
- a) HCHO
  - b)  $\text{CHCl}_3 / \text{NaOH}$
  - c)  $\text{CCl}_4 / \text{NaOH}$
  - d)  $\text{HCHO} / \text{H}^+$  or  $\text{OH}^-$
33. Phenol is more readily soluble in
- a) dil. HCl
  - b) Both NaOH and HCl
  - c) NaOH sol
  - d) Sodium bicarbonate solution.
34. Carboic acid is
- a) aqueous solution of phenol
  - b) phenyl benzene
  - c) phenyl acetate
  - d) Salol
35. Organic acid without a carboxylic group is
- a) ascorbic acid
  - b) vinegar
  - c) oxalic acid
  - d) picric acid
36. Salicylaldehyde can be prepared from
- a) Phenol and chloroform
  - b) Phenol, chloroform and sodium hydroxide
  - c) Phenol, carbon tetrachloride and NaOH
  - d) None
37. Phenol is treated with bromine water and shaken well to get white precipitate. The white precipitate is
- a) 1-Bromophenol
  - b) 2,4,6-Tribromophenol
  - c) 2,4-Dibromophenol
  - d) Mixture of o- and p-bromophenol
38. Cumene is the compound used for commercial preparation of phenol. Chemically cumene is
- a) Isopropyl benzene
  - b) ethyl benzene
  - c) n-propylbenzene
  - d) None of above

39. Hybrid state of central oxygen atom in ether is  
a)  $sp^2$             b)  $sp^3$             c)  $sp$             d)  $sp^3d$
40. Oxygen atom in ether is :  
a) very active  
b) replaceable  
c) active  
d) comparatively inert.
41. Which of the following compounds is used as an anesthesia?  
a) ethyl alcohol  
b) acetic acid  
c) diethyl ether  
d) acetic anhydride
42. When diethyl ether is treated with excess of  $Cl_2$  in the presence of sunlight, the product formed is :  
a)  $CH_3CHCl-O-CH_2CH_3$   
b)  $CH_3CHCl-O-CHClCH_3$   
c)  $CCl_3CCl_2-O-CCl_2CCl_3$   
d)  $CH_3CCl_2-O-CHClCH_3$ .
43. An ether is more volatile than an alcohol having the same molecular formula. This is due to  
a) dipole character of ethers  
b) alcohols having resonance structure  
c) inter-molecular hydrogen bonding in ethers  
d) inter- molecular hydrogen bonding in alcohols.
44. All alcohols are  
a) completely soluble in water  
b) ionized in water  
c) not soluble in water  
d) soluble organic solvents
45. Power alcohol is a mixture of petrol and alcohol in the ratio of  
a) 4 : 1            b) 1 : 4            c) 2 : 1            d) 1 : 2
46. Widespread deaths due to liquor poisoning is because of  
a) presence of bad compound in liquor  
b) presence of methyl alcohol  
c) presence of ethyl alcohol  
d) presence of carbonic acid.
47. The dehydration of butane-1-ol gives  
a) 1 – butene as the main product  
b) 2 – butene as the main product  
c) equal amounts of 1 – butene and 2 – butene  
d) 2 – methyl propene.

48. Rectified spirit can be converted into absolute alcohol by
- Fractional distillation
  - steam distillation
  - cannot be converted
  - by putting rectified spirit in contact with quick lime followed by distillation.
49. Which one is primary alcohol ?
- Buten -2-ol
  - propan-2-ol
  - Butan-1-ol
  - 2,3-Dimethylhexane-4-ol.
50. In reaction of alcohols with alkali metal, which of the following alcohol will react fastest ?
- secondary
  - tertiary
  - primary
  - all equal
51. Primary and secondary alcohols on action of red hot copper give
- Aldehydes and ketones respectively
  - Ketones and aldehydes respectively
  - Only aldehydes
  - Only ketones.