

ALKANES



- The order of reactivity of alkyl halides in Wurtz reaction is
 - (1) $R-I > R-Br > R-Cl$
 - (2) $R-I < R-Br < R-Cl$
 - (3) $R-Br > R-I < R-Cl$
 - (4) $R-I > R-Cl > R-Br$
- Kolbe's electrolysis of a mixture of pot. Propanoate and pot. 3-Methylbutanoate gives
 - (1) Butane and isobutane
 - (2) Butane and 2, 5-dimethylhexane
 - (3) Butane, 2, 5-dimethylhexane and isohexane
 - (4) Butane and isohexane
- The Corey-House alkane synthesis is carried out by treating an alkyl halide with
 - (1) Lithium metal
 - (2) Copper metal
 - (3) Lithium metal followed by reaction with cuprous iodide and then treating the product with an alkyl halide
 - (4) Cuprous iodide followed by reaction with alkyl halide
- Which of the following acids on decarboxylation gives isobutane
 - (1) 2, 2-Dimethyl butanoic acid
 - (2) 2, 2-dimethyl propanoic acid
 - (3) 3-Methyl pentanoic acid
 - (4) 2-Methyl butanoic acid
- Which of the following compound is not suitable to obtain from Wurtz reaction ?
 - (1) ethane
 - (2) butane
 - (3) isobutane
 - (4) hexane
- When ethyl chloride and n-propyl chloride undergoes Wurtz reaction which is not obtained
 - (1) n-butane
 - (2) n-pentane
 - (3) n-hexane
 - (4) isobutane
- Which of the following reagent can be used for following conversion

$$\text{HO}-\text{C}_5\text{H}_9-\text{C}(=\text{O})\text{CH}_3 \xrightarrow{?} \text{HO}-\text{C}_5\text{H}_9-\text{CH}_2\text{CH}_3$$

 - (1) Zn-Hg/HCl
 - (2) Red P + HI
 - (3) $\text{NH}_2\text{-NH}_2/\text{OH}^-$
 - (4) All of them
- $$\text{(A) } \text{CH}_3-\underset{\text{OH}}{\text{CH}}-\text{COOH} \xrightarrow{\text{Red P/HI}} \text{B}$$

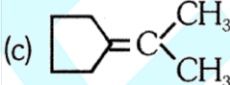
'B' loses its optical activity because of

 - (1) Chirality of the molecule destroyed
 - (2) Symmetry of molecule is destroyed
 - (3) Spatial arrangement is changed
 - (4) Racemic mixture is formed

9. $\text{CH}_3-\underset{\text{CH}_3}{\text{CH}}-\text{MgCl} + \text{CH}_3-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{OH} \longrightarrow \text{'Q'}$; What is 'Q' is ?
 (1) isobutene (2) isopropane
 (3) tert. butyl chloride (4) propane
10.  can not be converted to  by :
 (1) Red P + HI (2) Wolf Kishner reduction
 (3) Clemmensen reaction (4) LiAlH_4
11. $(\text{CH}_3)_3\text{C}-\text{Br} \xrightarrow[\text{(ii) CuI}]{\text{(i) Li}} \text{A} \xrightarrow{\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}} \text{B}$; 'B' is
 (1) $\text{CH}_3(\text{CH}_2)_2\text{C}(\text{CH}_3)_3$ (2) $(\text{CH}_3)_3\text{C}-\text{C}(\text{CH}_3)_3$
 (3) $\text{CH}_3(\text{CH}_2)_4\text{CH}_3$ (4) $(\text{CH}_3)_2\text{CH}_2\text{C}(\text{CH}_3)_3$
12. Which of the following reactions does not involve a C-C bond formation
 (1) Hydrolysis of a Grignard reagent
 (2) Combination of two alkyl free radicals
 (3) Corey-House synthesis of alkanes
 (4) $\text{RNa} + \text{R}-\text{Br} \longrightarrow \text{R}-\text{R} + \text{NaBr}$
13. The highest boiling point is expected for
 (1) Isooctane (2) 2,2,3,3-tetramethylbutane
 (3) n-octane (4) n-butane
14. Pyrolysis of alkanes is a
 (1) Nucleophilic addition reaction (2) Free radical substitution reaction
 (3) Electrophilic addition reaction (4) Free radical elimination reaction
15. The antiknocking compound is
 (1) TEL (2) Diethylzinc
 (3) Dimethylcadmium (4) Tetramethyl tin
16. Which of the following reactions of methane is incomplete combustion :-
 (1) $2\text{CH}_4 + \text{O}_2 \xrightarrow{\text{Cu}/523\text{K}/100\text{atm.}} 2\text{CH}_3\text{OH}$
 (2) $\text{CH}_4 + \text{O}_2 \xrightarrow{\text{Mo}_2\text{O}_3} \text{HCHO} + \text{H}_2\text{O}$
 (3) $\text{CH}_4 + \text{O}_2 \longrightarrow \text{C(s)} + 2\text{H}_2\text{O(l)}$
 (4) $\text{CH}_4 + 2\text{O}_2 \longrightarrow \text{CO}_2\text{(g)} + 2\text{H}_2\text{O(l)}$

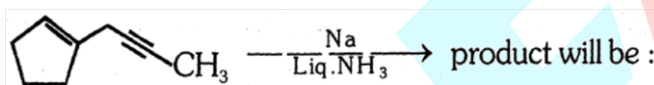
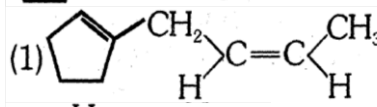
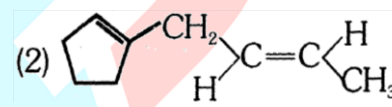
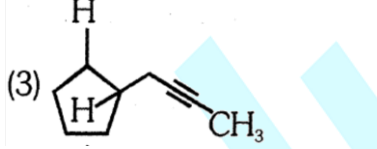
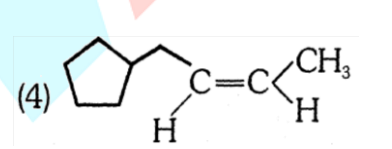
ALKENE

17. Ozonolysis of 3-Methyl-1-butene gives a mixture of
 (1) Propanal and ethanol (2) Propanone and ethanal
 (3) 2-Methylpropanal and methanol (4) Butanone and methanal

18. Which alkene gives acetone only on ozonolysis
 (1) Isobutylene (2) 2,3-Dimethyl-1-butene
 (3) 2,3-Dimethyl-2-butene (4) 3,3-Dimethyl-1-butene
19. Oxidation of isobutylene with acid potassium permanganate gives
 (1) Acetone + CO₂ (2) Acetic acid
 (3) Acetic acid + CO₂ (4) Acetic acid + acetone
20. Which of the following reactions is used for locating the position of double bond in an alkene
 (1) Hydroboration (2) Hydroxylation
 (3) Chlorohydroxylation (4) Ozonolysis
21. $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} \xrightarrow[\Delta]{\text{alc.KOH}} \text{A} \xrightarrow[(\text{ii})\text{Zn.H}_2\text{O}]{(\text{i})\text{O}_3} \text{B} + \text{C}$, In the above reaction A, B and C are given by the set
 (1) Propylene, acetone, formaldehyde
 (2) Propene, ethanal, methanal
 (3) Propyne, acetaldehyde, formaldehyde
 (4) Propylene, propionaldehyde, formaldehyde
22. Which one of the following has the smallest heat of hydrogenation per mole
 (1) 1-butene (2) Trans-2-butene
 (3) Cis-2-butene (4) Propene
23. An alkene "A" contains three C–C, eighth C–H σ -bonds and one C–C π -bond. "A" on ozonolysis gives two moles of an aldehyde of molar mass 44. Which of the following is the IUPAC name of A.
 (1) But-1-ene (2) But-2-ene
 (3) Pent-2-ene (4) But-2-yne
24. The molecules having dipole moment are:
 (1) 2,2-dimethylpropane (2) trans pent-2-ene
 (3) cis-hex-3-ene (4) 2 and 3
25. Which of the following alkenes on ozonolysis give a mixture of ketones only?
 (a) $\text{CH}_3\text{--CH=CH--CH}_3$ (b) $\text{CH}_3\text{--CH(CH}_3\text{)--CH=CH}_2$
 (c)  (d) $(\text{CH}_3)_2\text{C=C(CH}_3)_2$
 (1) a and b (2) band c (3) band d (4) c and d

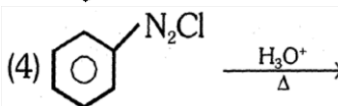
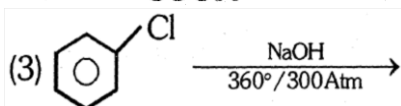
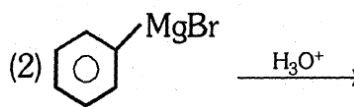
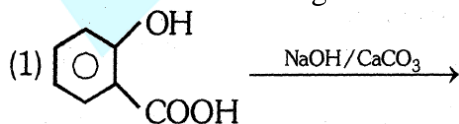
ALKYNES

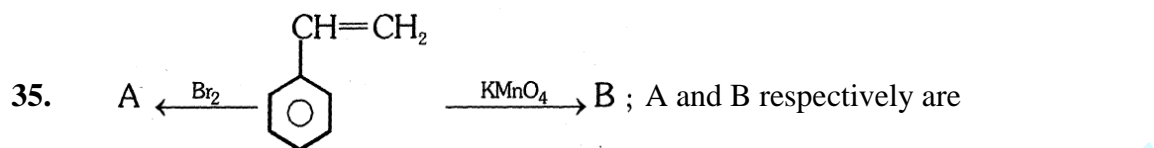
26. Kolbe's electrolysis of sodium maleate at anode gives.
 (1) Only acetylene (2) Only CO₂
 (3) Acetylene+ CO₂ (4) CO₂ + H₂

27. The pH of solution in Kolbe's electrolysis
 (1) increase with time (2) decrease with time
 (3) remains constant (4) nothing can be said
28. Which of the following compound will not give a precipitate with Tollen's reagent
 (1) ethyne (2) 1-butyne
 (3) 3-methyl-1-butyne (4) 1-pentene
29. $B \xleftarrow[\text{H}_2\text{O}_2/\text{OH}^-]{\text{BH}_3/\text{THF}} \text{CH}_3\text{C}\equiv\text{CH} \xrightarrow{\text{HgSO}_4/\text{H}_2\text{SO}_4} \text{A}$, A and B are
 (1) $\text{CH}_3\text{CH}_2\text{CHO}$, CH_3COCH_3
 (2) CH_3COCH_3 , $\text{CH}_3\text{CH}_2\text{CHO}$
 (3) CH_3COCH_3
 (4) CH_3COCH_3 , $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
30. $\text{MeCH}_2\text{C}\equiv\text{CH} \xrightarrow{\text{NH}_3/\text{NaNH}_2} \text{A} \xrightarrow{\text{EtBr}} \text{B}$, A and B are
 (1) $\text{MeCH}_2\text{C}\equiv\text{CNa}$, $\text{MeCH}_2\text{C}\equiv\text{C-Et}$
 (2) $\text{MeCH}_2\text{CH}=\text{CH}_2$, $\text{MeCH}_2\text{-CHEt-CH}_3$
 (3) $\text{MeCH}_2\text{CH}=\text{CHNH}_2$, $\text{MeCH}_2\text{CH}=\text{CH-NHBr}$
 (4) $\text{MeCH}_2\text{C}\equiv\text{C-NH}_2$, $\text{MeC}\equiv\text{C-NH-Br}$
31.  product will be :
 (1) 
 (2) 
 (3) 
 (4) 
32. To distinguish between propene and propyne, the reagent would be -
 (1) Bromine (2) Alkaline KMnO_4
 (3) Ammonical silver nitrate (4) Ozone
33. When treated with ammonical cuprous chloride, which one among the following forms red precipitate ?
 (1) C_2H_6 (2) C_2H_4 (3) C_2H_2 (4) C_6H_6

AROMATIC HYDROCARBONS

34. In which of the following reactions benzene is obtained

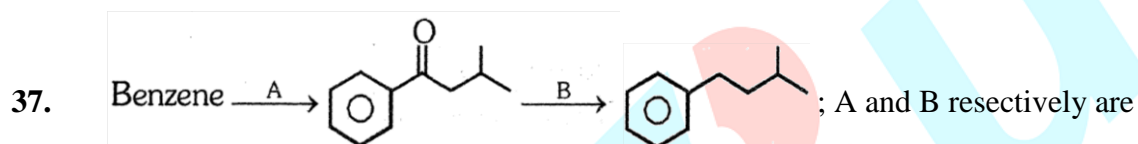




- (1) o-bromo styrene, benzoic acid (2) p-bromostyrene, benzaldehyde
 (3) m-bromostyrene, benzaldehyde (4) Styrene dibromide, benzoic acid.

36. The ozonolysis product of 1, 2-dimethyl benzene is/are :-

- (1) Only $\text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3$ (2) $\text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{H} + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3$
 (3) $\text{H}-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{H} + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3$ (4) $\text{CH}_3\text{C}(=\text{O})-\text{C}(=\text{O})\text{CH}_3 + \text{HC}(=\text{O})-\text{CH}(=\text{O}) + \text{CH}_3\text{C}(=\text{O})-\text{C}(=\text{O})-\text{H}$



- (1) $\text{Zn} - \text{Hg} + \text{HCl}$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}$ (2) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}$, LiAlH_4
 (3) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}$, NaBH_4 (4) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}$, $\text{Zn}-\text{Hg} + \text{HCl}$

38. Which of the following reaction does not gives benzoic acid

- (1) $\text{C}_6\text{H}_5-\text{CH}_3 \xrightarrow{\text{Acidic KMnO}_4}$
 (2) $\text{C}_6\text{H}_5-\text{CH}_3 \xrightarrow[\text{H}_2\text{O}]{\text{CrO}_2\text{Cl}_2} \xrightarrow{[\text{O}]}$
 (3) $\text{C}_6\text{H}_5\text{C}\equiv\text{CH} \xrightarrow{\text{Acidic KMnO}_4}$
 (4) $\text{C}_6\text{H}_5-\text{C}(\text{CH}_3)_2-\text{CH}_3 \xrightarrow{\text{Acidic KMnO}_4}$

ANSWER KEY

EXERCISE-I

- | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. | (1) | 2. | (3) | 3. | (3) | 4. | (2) | 5. | (3) | 6. | (4) | 7. | (3) |
| 8. | (1) | 9. | (4) | 10. | (4) | 11. | (1) | 12. | (1) | 13. | (3) | 14. | (4) |
| 15. | (1) | 16. | (3) | 17. | (3) | 18. | (3) | 19. | (1) | 20. | (4) | 21. | (2) |
| 22. | (2) | 23. | (2) | 24. | (4) | 25. | (4) | 26. | (3) | 27. | (1) | 28. | (4) |
| 29. | (2) | 30. | (1) | 31. | (2) | 32. | (3) | 33. | (3) | 34. | (2) | 35. | (4) |
| 36. | (4) | 37. | (4) | 38. | (4) | | | | | | | | |