

14.1 SATURATED HYDROCARBONS

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12.4 Classification of organic compounds

1. The general formula of alkanes is
(a) C_nH_{2n} (b) C_nH_{2n+2} (c) C_nH_{2n-2} (d) C_nH_{2n+1}
2. Which of the following formulas represents alkanes
a. $C_{10}H_{20}$ b. C_7H_{16} c. C_{58} d. C_9H_{10}

General methods of preparations

1. From haloalkanes
 - a. Reduction
 - b. Wurtz reaction
2. From sodium salts of carboxylic acids
By soda lime decarboxylation
3. Ethane is formed when
 - a. Iodoethane is reduced
 - b. Sodium ethanoate is heated with soda lime
 - c. Ethene is hydrogenated
 - d. All of the above
4. Which of the following reactions can prepare an alkane from an alkyl halide?
 - a. Kolbe's electrolysis
 - b. Wurtz reaction
 - c. Soda lime decarboxylation
 - d. Friedel-Craft's alkylation
5. Ethane is obtained from ethylene by which of the following methods
 - a. Dehydrohalogenation
 - b. Halogenation
 - c. Hydrogenation
 - d. Wurtz reaction
6. When a haloalkane solution is treated with metallic sodium in the presence of dry ether, the respective alkane is obtained. This reaction is known as
(a) Wurtz reaction
(b) Wolf-Kishner reduction
(c) Cannizzaro's reaction
(d) Reimer-Tiemann reaction
7. An alkyl halide 'A' reacts with Na in the presence of dry ether to form B. If the molecular formula of B is C_4H_{10} , what is A?
A) $CH_3CH_2CH_2CH_2Cl$
B) $CH_3CH_2CH_2Cl$
C) CH_3Cl
D) CH_3CH_2Cl

Chemical properties

1. Substitution reactions
 - a. Halogenation
 - b. Nitration

Sulphonation

2. Oxidation (Combustion)

8. Complete oxidation of ethane yields:
a. CO_2 and H_2O b. ethanol c. ethanal d. ethanoic acid
9. Substance Q is a hydrocarbon. When 1.00 g of Q is completely burned, 3.22 g of carbon dioxide is produced. What could be the identity of Q?
A cyclohexene **B** cyclopentane **C** ethene **D** pentane
10. Mixture R consists of one mole of C_3H_6 and one mole of C_4H_6 . What is the minimum number of moles of oxygen molecules needed for the complete combustion of mixture R?
A 6.5 **B** 7 **C** 10 **D** 20
11. Which represents a cyclic alkane?
a. C_3H_6 b. C_3H_8 c. C_8H_{10} d. C_8H_{12}
12. Alkanes are also known as
a. Olefins b. Paraffin c. Acetylene d. Both a and b
13. Sodium ethanoate with soda lime gives
a. Methane b. Ethane c. Propane d. Butane
14. Wurtz reaction using Bromoethane yields
a. 2-bromobutane b. 2-methylpropane c. Ethane d. Butane
15. Which of the following compounds cannot be synthesised by the Wurtz reaction?
a. Ethane b. Butane c. Hexane d. Methane
16. Which of the following compounds cannot be synthesised by the Wurtz reaction?
a. Ethane b. Methane c. Butene d. Both b and c
17. Lower alkanes easily undergo
a. Halogenation b. Nitration c. Sulphonation d. Aromatization
18. When a hydrogen atom of an alkane is replaced by a halogen atom, the reaction is known as
a. Addition b. Oxidation c. Substitution d. reduction
19. A saturated hydrocarbon is shown by C_nH_{10} . The value of n in this compound is
a. 2 b. 4 c. 5 d. 6

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