

ALIPHATIC HYDROCARBONS

ALKANE

Preparation

1. Define hydrogenation? Give its two applications.
2. Which compounds are reduced in Clemmensen and Wolf-Kishner's reduction?

OR

Prepare alkanes from Clemmensen's reduction and Wolf-Kishner's reduction?

OR

How alkanes are prepared from aldehydes and ketones?

3. How ethane can be prepared by Kolbe's electrolysis?
4. How is reduction of 1-Chloropropane done to prepare propane?

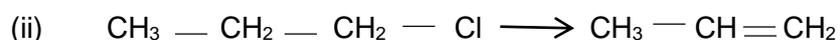
Reactions

5. Convert methane into
 - (i) Formaldehyde
 - (ii) Nitromethane
6. Give four uses of methane?
7. Sigma bond is inert in alkanes. Justify?

OR

The sigma bonds are inert in alkanes. Explain?

8. Why do alkanes show least reactivity?
9. Write down the structural formula of the given compounds?
 - (i) 2,2-Dimethyl hexane
 - (ii) 4-iso-propyl heptane
10. Why π - bond is more reactive than sigma bond?
11. What is hydrogenolysis? Give an example?
12. Describe nitration of alkanes?
13. Convert CH_4 into CH_2O ?
14. How can you convert the following:



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ALKENE

Preparation

15. Write the reaction of dehydrohalogenation of ethyl bromide to prepare ethene?
16. How is ethene prepared by Kolbe's reaction by using disodium succinate?
17. How cis and trans alkenes are prepared from alkynes?

Reactions

18. Prepare ethene from
 - (i) Ethyl alcohol
 - (ii) Ethyl chloride
 19. Identify the actual product when HBr is added to propene. Write equation also?
 20. Describe how we can distinguish between ethane and ethene?
 21. What is Baeyer's test? What is its use?
 22. Write structural formula of
 23. 1,3-Pentadiene
 - (ii) Vinyl bromide
 24. Explain Markownikov's rule with suitable example?
 25. Define Raney nickel? Give its uses.
- OR
- What is Raney Nickel. How is it formed?
26. Write down structure formula of
 - Vinyl chloride
 - (ii) Vinyl Cyanide
 27. Why alkanes are less reactive than alkenes?
 28. Describe how we can distinguish between ethane and ethene?
 29. Give four uses of ethene.
 30. Give a chemical test which shows that ethene has a double bond?
 31. How common names of alkenes are derived? Give common names of $\text{CH}_2=\text{CH}_2$ and $\text{CH}_3-\text{CH}=\text{CH}_2$.
 32. Give the mechanism of ozonolysis of ethene?
 33. Describe polymerization of ethene.
 34. Describe a test for the presence of unsaturation in organic molecules?

ALKYNE

Reactions

35. Prepare disilver acetylide by using acetylene?
36. How does propyne react with:
 - (i) $\text{AgNO}_3/\text{NH}_4\text{OH}$
 - (ii) $\text{Cu}_2\text{Cl}/\text{NH}_4\text{OH}$
37. Why alkynes are less reactive than alkenes towards electrophilic reagents?
38. How will you convert 1-Butene to 1-Butyne?
39. How ethyne is converted into ethanal?
40. Explain the acidic nature of ethyne?
41. Write the structural formula for neoprene and iso-butylene.
42. How do you distinguish between ethane and ethyne?
43. Distinguish between ethene and ethyne by a chemical test?
44. How will you convert 1-Butene into 1-Butyne?
45. How can ethyne be prepared commercially from calcium carbide?
46. Why alkenes are more reactive than alkanes and alkynes?
47. How ethyne is converted into (i) acetaldehyde (ii) Benzene
48. Why alkynes are less reactive than alkenes towards electrophilic reagents?
49. Convert $\text{HC}\equiv\text{CH}$ into oxalic acid?
50. How would you prepare acetone from propyne?

LONG QUESTIONS

1. How can you convert:
 - (i) 2,3-Dibromo butane into 2-Butene
 - (ii) Acetone into Propane
 - (iii) Acetylene into vinyl acetylene
 - (iv) Acetylene into disilver acetylide
2. Starting from ethene, outline the reactions for preparation of the following compounds:
 - (i) 1,2-dibromoethane
 - (ii) Ethane
 - (iii) ethyne
 - (iv) ethylene glycol
3. Discuss acidic nature of alkynes with examples?

4. Write the chemical reaction of ethene with the following:
(i) HCl (ii) Br₂ (iii) O₃ (iv) HOX
5. How will you make the following conversions from an alkene:
(i) 2-Bromopropane (iii) 2-Bromo-2-methyl propane
(ii) 2-Propanol (iv) Propylene oxide
6. Explain free radical mechanism for the reaction of chlorine with methane in the presence of sunlight.
7. Discuss in detail rules for naming alkanes by IUPAC system.
8. Starting from ethyne, how would you prepare glyoxal and benzene.
9. Write a note on acidic character of alkynes. Elaborate your answer with chemical equations.
10. Bring about following conversions
(i) Methane to ethane (ii) ethane to methane
11. Write balanced equations for the reaction of ethene with
(ii) O₂/Ag (ii) S₂Cl₂ (iii) KMnO₄ (iv) HOCl
(iii) How Kolbe's electrolysis method is used for the preparation of alkenes and alkynes.
12. How alkenes and alkynes can be prepared from vicinal dihalide?
13. How the presence of double bond is detected by using Baeyer's reagent?
14. How will you convert ethene into
(i) Ethyl Alcohol (iii) ethylene epoxide
(ii) Ethylene glycol (iv) ethylene chlorohydrin
15. Write a note on polymerization of ethyne?
16. State Markownikov's rule. Give reactions of HBr with :
(i) Propene (ii) 2-Butene (iii) 1-Butene
17. Write a note on acidic character of alkynes.