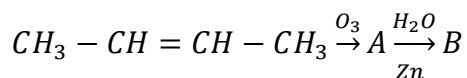


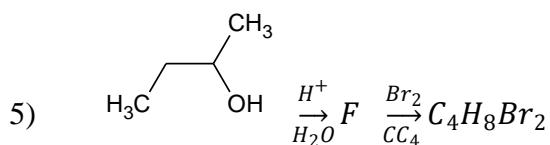
HYDROCARBONS

- 1) Which of the following deactivates benzene towards further substitution reaction?
 1) – OR 2) – OH 3) – NHR 4) – COOR

- 2) The following sequence of reactions, the alkene which gives compound B



- 1) acetone 2) propanal 3) prop-2-ene 4) Acetaldehyde
- 3) The total number of cyclic structural and stereo isomers possible for a compound with molecular formula C_5H_{10} is
 1) 5 2) 4 3) 7 4) 6
- 4) Predict the product of the reaction of 1-pentyne and excess HBr in the presence of hydrogen peroxide.
 1) 1, 1-dibromopentane 2) 1,2-dibromopentane



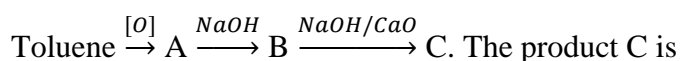
[5 such products are possible] How many structures of F are possible?

- 1) 2 2) 3 3) 5 4) 6
- 6) The intermediate during the addition of HCl to propene in the presence of peroxide is
 1) $CH_3CH_2\dot{C}H_2$ 2) $CH_3\overset{+}{C}HCH_3$ 3) $CH_3CH_2\overset{+}{C}H_2$
 4) $CH_3\dot{C}HCH_2Cl$

- 13) Benzene on ozonolysis gives
 1) BHC 2) cyclohexane 3) ethanedial 4) Both (1) and (2)
- 14) In the Nitration of benzene and conc. HNO_3 and conc. H_2SO_4 the electrophile is
 1) NO_2 2) NO 3) NO_2^+ 4) NO_2^-
- 15) During chlorination of methane usually a mixture of all the chlorinated products, i.e., methyl chloride, methylene dichloride, chloroform and carbon tetrachloride are obtained. What will happen, if we use excess of Cl_2 in this reaction?
 1) Only methyl chloride will be formed 2) Only chloroform will be formed
 3) Only methylene dichloride will be formed 4) Only CCl_4 will be formed
- 16) Which set of products is expected on reductive ozonolysis of the following diolefin?
 $\text{CH}_3\text{HC}=\text{C}(\text{CH}_3)-\text{CH}=\text{CH}_2$
 1) CH_3CHO ; CH_3COCH_3 ; CH_2O 2) $\text{CH}_3\text{HC}=\text{C}(\text{CH}_3)-\text{CHO}$, CH_2O
 3) CH_3CHO ; CH_3COCHO ; CH_2O 4) CH_3CHO ; $\text{CH}_3\text{COCH}=\text{CH}_2$
- 17) Ethylene reacts with Baeyers reagent i.e. 1% alkaline KMnO_4 solution to give
 1) Glycerol 2) Alcohols 3) Glycol 4) None
- 18) Which one of the following compound will exhibit geometrical isomerism?
 1) 1-phenyl-2-butene 2) 1,1-diphenyl-1-propene
 3) 2-phenyl-1-butene 4) 3-phenyl-1-butene
- 19) 2.8 g of pure alkene containing only one double bond per molecule, react completely with 8g of bromine (in an inert solvent). What is the molecular formula of the alkene?
 1) C_3H_4 2) C_2H_4 3) C_6H_{12} 4) C_4H_8

- 20) Propyne and propene can be distinguished by
- | | |
|-------------------------------------|----------------------------------|
| 1) Br_2 and CCl_4 | 2) AgNO_3 in ammonia |
| 3) Dil. KMnO_4 | 4) Conc. H_2SO_4 |
- 21) Which of the following are o, p-directing groups?
- | | |
|------------|-------------------|
| 1) Toluene | 2) Nitrobenzene |
| 3) Aniline | 4) Both (1) & (3) |
- 22) The product which will not be formed when ethane reacts with chlorine in the presence of diffused sunlight
- | | |
|--------------------------|------------|
| 1) Ethylene dichloride | 2) propane |
| 3) ethylidene dichloride | 4) butane |
- 23) The synthesis of oct-3-yne is achieved by adding a bromoalkane into a mixture of sodium amide and alkyne. The bromoalkane and alkyne respectively are
- 1) $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{C}\equiv\text{CH}$
 - 2) $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CH}$
 - 3) $\text{BrCH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CH}$
 - 4) $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CH}$
- 24) Which of the following is anti aromatic?
- | | |
|-------------------------|-------------------------------|
| 1) Cyclopropenyl cation | 2) Cycloheptatriene |
| 3) Phenanthrene | 4) Cyclooctatetraenyl dianion |
- 25) Arrange the following compounds in decreasing order of reactivity towards the addition of HBr $\text{RCH}=\text{CHR}$, $\text{CH}_2=\text{CH}_2$, $\text{R}_2\text{C}=\text{CHR}$, $\text{R}_2\text{C}=\text{CR}_2$
- 1) $\text{RCH}=\text{CHR} < \text{R}_2\text{C}=\text{CR}_2 < \text{R}_2\text{C}=\text{CHR} < \text{CH}_2=\text{CH}_2$
 - 2) $\text{CH}_2=\text{CH}_2 < \text{RCH}=\text{CHR} < \text{R}_2\text{C}=\text{CHR} < \text{R}_2\text{C}=\text{CR}_2$
 - 3) $\text{R}_2\text{C}=\text{CHR} < \text{RCH}=\text{CHR} < \text{CH}_2=\text{CH}_2 < \text{R}_2\text{C}=\text{CR}_2$
 - 4) $\text{R}_2\text{C}=\text{CR}_2 < \text{R}_2\text{C}=\text{CHR} < \text{RCH}=\text{CHR} < \text{CH}_2=\text{CH}_2$

26) In the reaction



- 1) C_6H_6 2) $\text{C}_6\text{H}_5\text{OH}$ 3) $\text{C}_6\text{H}_5\text{ONa}$ 4) $\text{C}_6\text{H}_5\text{COONa}$

27) When 2-Butyne is treated with Pd-BaSO₄ deactivated with Quinoline the product formed will be

- 1) 1-Butene 2) Cis-But-2ene
3) 2-hydroxy butane 4) trans-2-Butene

28) On halogenation, an alkane (C_5H_{12}) gives only one mono substituted product. The alkane is

- 1) 2,2-dimethyl propane 2) cyclopentane
3) 2-methyle butane 4) n-Pentane

29) Two gases, P and Q decolourise aqueous bromine but only one of them gives a white precipitate with aqueous ammonical silver nitrate solution. P and Q are likely to be

- 1) ethane and but-2-yne 2) ethyne and propyne
3) But -1-yne and but-2-yne 4) ethane and ethyne

30) The product formed when 1, 4-dibromocyclohex-2-ene is heated with alcoholic potash

- 1) benzene 2) 1-Bromo-2,4-cyclohexadiene
3) 1-Bromocyclohex-2-ene 4) 1,4-dibromobenzene

31) The products obtained via oxymercuration ($\text{HgSO}_4 + \text{H}_2\text{SO}_4$) of 1-butyne would be

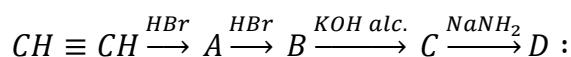
- 1) $\text{CH}_3 - \text{CH}_2 - \text{CO} - \text{CH}_3$ 2) $\text{CH}_3 \text{CH}_2 \text{COOH} + \text{HCOOH}$
3) $\text{CH}_3 - \text{CH}_2 - \text{CHO} + \text{HCHO}$ 4) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CHO}$

32) The compound X(C_5H_8) reacts with ammonical AgNO_3 to give a white precipitate and reacts with excess of KMnO_4 to give the acid, $(\text{CH}_3)_2\text{CH-COOH}$. Therefore X is:

- 1) $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}-\text{CH}_3$ 2) $(\text{CH}_3)_2\text{C}=\text{C}=\text{CH}_2$
3) $\text{CH}_3(\text{CH}_2)_2\text{C}\equiv\text{CH}$ 4) $(\text{CH}_3)_2\text{CHC}\equiv\text{CH}$

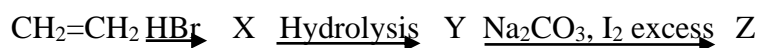
- 33) $A \xrightarrow{X} B \xrightarrow{\text{Bayer's reagent}}$
- 1) B is trans-2-butene, X is Na-liq. NH_3 2) A is 2-butyne, X is Na-liq NH_3
- 3) X is Lindlar Catalyst, B is cis -2-butene 4) A is 2-butene, X is SeO_2

- 34) In the following sequence the product D is,



- 1) ethanol 2) ethane 3) ethanal 4) ethyne
- 35) Which of the following is the most acidic?
- 1) butane 2) 1-butene 3) 1-butyne 4) 2-butyne

- 36) Identify Z in the following series:



- 1) CH_3I 2) CH_3CHO
- 3) $\text{C}_2\text{H}_5\text{I}$ 4) $\text{C}_2\text{H}_5\text{OH}$
- 37) In the reaction, $\text{C}_6\text{H}_5\text{CH}_3 \xrightarrow{\text{oxidation}} \text{A} \xrightarrow{\text{NaOH}} \text{B} \xrightarrow[\Delta]{\text{sodalime}} \text{C}$ The product C is
- 1) $\text{C}_6\text{H}_5\text{COONa}$ 2) C_6H_6 3) $\text{C}_6\text{H}_5\text{OH}$ 4) $\text{C}_6\text{H}_5\text{Ona}$

- 38) Which of the following compounds cannot be prepared by Kolbes electrolytic method?

- 1) Propane 2) Butane 3) Ethane 4) None

- 39) A hydrocarbon with molecular formula C_8H_{18} gives only one monochloro derivative. The hydrocarbon is

- 1) 2-Methylheptane 2) 2, 2, 4-Trimethylpentane
- 3) 2,2,3,3-Tetramethylbutane 4) n-Octane

- 47) The product formed when cyclobutene reacts with cold alkaline potassium permanganate
- 1) butane-1, 4-dioic acid
 - 2) cis-1,2-cyclobutanediol
 - 3) Cyclobutanol
 - 4) trans-1, 2-cyclobutanediol
- 48) Which of the following has the smallest heat of hydrogenation per mole?
- 1) cis-2-butene
 - 2) trans-2-butene
 - 3) 1-butane
 - 4) 1, 3-butadiene
- 49) The major product of the reaction of 1,2-dibromobutane and excess NaNH_2 is
- 1) 1-butyne
 - 2) 1-bromo-1-butene
 - 3) 2-bromo-1-butene
 - 4) 1,2-butadiene
- 50) What product is formed on reaction of nitrobenzene with fuming HNO_3 in the presence of Conc. H_2SO_4 ?
- 1) o-dinitrobenzene
 - 2) m-dinitrobenzene
 - 3) p-dinitrobenzene
 - 4) Both (1) and (3)