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# Objective Test

## Hydrocarbons, Haloalkanes, Alcohols, Phenols and Ethers

**M.M – 200** **Time- 1 Hr.**

**Q.1. -**Consider the following reaction-

$$CH_3\text{-}CH{=}CH_2 + Cl_2 \xrightarrow{H_2O} A$$

The major product A formed in the reaction is-

(a) $CH_2{=}CH\text{-}CH_2\text{-}Cl$ (b) $CH_3\text{-}\underset{\displaystyle OH}{\underset{|}{CH}}\text{-}CH_2\text{-}Cl$

(c) $CH_3\text{-}CH{=}CH\text{-}Cl$ (d) Unpredictable

**Q.2.-** An alkene on ozonolysis gives a mixture of ethanal and propanone. The alkene is-

(a) $CH_2{=}CH\text{-}CH_3$ (b) $CH_3\text{-}\underset{\displaystyle CH_3}{\underset{|}{C}}{=}CH\text{-}CH_3$

(c) $CH_3\text{-}CH{=}CH\text{-}CH_3$ (d) None

**Q.3.-**Markovnokoff's addition of HBr to the double bond of alkenes involves following reaction intermediate -

(a) Carbonium ions (b) Carbanions

(c) Free radicals (d) Carbenes

**Q.4.-** Anti-Markovnokoff's addition of HBr to the double bond of alkenes involves following reaction intermediate-

(a) Carbonium ions (b) Carbanions

(c) Free radicals (d) Carbenes

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**Q.5.-** Dehydration of ethanol to alkenes follows following mechanism -

(a) $SN^1$ (b) $SN^2$

(c) $E^1$ (d) $E^2$

**Q.6.-** Dehydration of ethanol to ethers follows following mechanism=

(a) $SN^1$ (b) $SN^2$

(c) $E^1$ (d) $E^2$

**Q.7.-**Williamson's synthesis of ethers follows following mechanism –

(a) $SN^1$ (b) $SN^2$

(c) $E^1$ (d) $E^2$

**Q.8.-**Which of the following compounds does not react with active metals to release hydrogen gas-

(a) $CH_3$-OH (b) $CH_3COOH$

(c) $CH_3$-O-$CH_3$ (d) H-O-H

**Q.9.-**Which of the following is most appropriate method of separation of ortho and para nitro phenol from their mixture-

(a) Distillation (b) Steam distillation

(c) Vacuum distillation (d) Fractional distillation

**Q.10.-**When esters are treated with aqueous NaOH, a mixture of alcohol and sodium salt of carboxylic acid is obtained. This reaction is called-

(a) Esterification (b) Saponification

(c) Dehydration (d) Ester hydrolysis

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**Q.11.-**Consider following reaction-

$$CH_3\text{-}CH{=}CH_2 \xrightarrow{B_2H_6} A \xrightarrow{H_2O_2/OH^-} B$$

The compound B is-

(a) $CH_3\text{-}CH_2\text{-}OH$ (b) $CH_3\text{-}\underset{\displaystyle OH}{\underset{|}{CH}}\text{-}CH_3$

(c) $CH_3\text{-}CH_2\text{-}CH_2\text{-}OH$ (d) $CH_3\text{-}CH_2\text{-}COOH$

**Q.12.-** Consider the following reaction-

$$CH_3\text{-}CH_2\text{-}Cl + CH_3\text{-}\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}\text{-}ONa \rightarrow A$$

The major product A formed in the reaction is-

(a) $CH_3\text{-}CH_2\text{-}O\text{-}\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}\text{-}CH_3$ (b) $CH_3\text{-}\underset{\displaystyle CH_3}{\overset{|}{CH}}{=}CH_2$

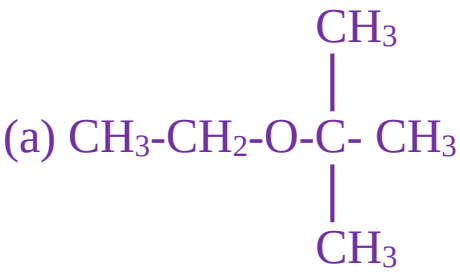
(c) $CH_3\text{-}CH_2\text{-}OH$ (d) $CH_3\text{-}CH_2\text{-}O\text{-}CH_2\text{-}CH_3$

**Q.13.-**Consider the following reaction-

$$CH_3\text{-}CH_2\text{-}ONa + CH_3\text{-}\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}\text{-}Cl \rightarrow A$$

The major product A formed in the reaction is-

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(a) 

(b) 

(c) $CH_3$-$CH_2$-OH

(d) $CH_3$-$CH_2$-O-$CH_2$-$CH_3$

**Q.14.-** Consider the following reaction-

$$CH_3\text{-}CH_2\text{-}OH \xrightarrow{PCC} \text{Product}$$

The product formed in the reaction is-

(a) $CH_3OCH_3$ (b) $CH_3COOH$

(c) $CH_3CHO$ (d) $CH_3COCH_3$

**Q.15.-**When ethanoic acid is treated with ethanol in presence of Conc. $H_2SO_4$ the compound formed is-

(a) $CH_3CO\text{-}O\text{-}COCH_3$ (b) $CH_3COOCH_3$

(c) $CH_3COOC_2H_5$ (d) All

**Q.16.-**Which of the following is the most acidic-

(a) $CH_3OH$ (b) $CH_3COOH$

(c) $C_6H_5OH$ (d) $H_2O$

**Q.17.-**Which of the following is the least acidic-

(a) $CH_3OH$ (b) $CH_3COOH$

(c) $C_6H_5OH$ (d) $H_2O$

**Q.18.-**Which of the following is the least acidic-

(a) $CH_3OH$ (b) H-C≡C-H

(c) $C_6H_5OH$ (d) $H_2O$

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**Q.19.-** The correct sequence of acidic strength is-
(a) $CH_3OH > CH_3COOH > C_6H_5OH > H_2O$
(b) $CH_3COOH > CH_3OH > C_6H_5OH > H_2O$
(c) $CH_3OH > CH_3COOH > H_2O > C_6H_5OH$
(d) $CH_3COOH > C_6H_5OH > H_2O > CH_3OH$

**Q.20.-** The correct sequence of acidic strength is-
(a) $CH_3COOH > C_6H_5OH > H_2O > CH_3OH > H\text{-}C\equiv C\text{-}H$
(b) $CH_3COOH > CH_3OH > C_6H_5OH > H_2O > H\text{-}C\equiv C\text{-}H$
(c) $CH_3OH > CH_3COOH > H_2O > C_6H_5OH > H\text{-}C\equiv C\text{-}H$
(d) $CH_3COOH > C_6H_5OH > H_2O > H\text{-}C\equiv C\text{-}H > CH_3OH$

**Q.21.-**Which of the following reacts with sodium carbonate and bicarbonate to release $CO_2$ gas-
(a) $CH_3OH$ (b) $CH_3COOH$
(c) $C_6H_5OH$ (d) $H_2O$

**Q.22.-**Which of the following reacts with aqueous alkali to form its salt, but does not react with sodium carbonate and bicarbonate to release $CO_2$ gas-
(a) $CH_3OH$ (b) $CH_3COOH$
(c) $C_6H_5OH$ (d) $H_2O$

**Q.23.-**Which of the following gives litmus test-
(a) $CH_3OH$ (b) $CH_3\text{-}O\text{-}CH_3$
(c) $C_6H_5OH$ (d) $H_2O$

**Q.24.-**Which of the following reacts with Grignard's reagent to give an addition compound, which on acid hydrolysis gives $1^0$ alcohol-
(a) $CH_3CHO$ (b) HCHO
(c) Both (d) $CH_3COCH_3$

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**Q.25.-**Which of the following reacts with Grignard's reagent to give an addition compound, which on acid hydrolysis gives $3^0$ alcohol-

(a) $CH_3CHO$ (b) HCHO

(c) Both (d) $CH_3COCH_3$

**Q.26.-** Dehydrogenation of isopropyl alcohol gives-

(a) $CH_3CHO$ (b) HCHO

(c) Both (d) $CH_3COCH_3$

**Q.27.-** When vapours of tert. butyl alcohol is passed over copper heated upto 573K temperature, the compound formed is-

(a) $CH_3CHO$ (b) HCHO

(c) $CH_3COCH_3$ (d) $CH_3C(CH_3)=CH_2$

**Q.28.-**Rectified spirit is a mixture of-

(a) 95.4% ethanol + 4.6% water (b) 98.4% ethanol + 1.6% water

(c) 4.6% ethanol + 95.4% water (d) 100% pure ethanol

**Q.29.-** In which of the following reactions, carbines are formed as reaction intermediate-

(a) Carbyl amine reaction (b) Riemer -Tiemann reaction

(d) Both the above (d) None

**Q.30.-** Power alcohol is a mixture of –

(a) 90.0% ethanol + 10% Petrol (b) 80.0% ethanol + 20% Petrol

(c) 20.0% ethanol + 80% Petrol (d) 10.0% ethanol + 90% Petrol

**Q.31.-** Which of the following undergoes esterification most easily-

(a) $CH_3OH$ (b) $CH_3CH_2OH$

(c) $C_6H_5OH$ (d) $CH_3CH(CH_3)CH_2OH$

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**Q.32.-**Which of the following undergoes esterification most easily-

(a) HCOOH (b) $CH_3COOH$

(c) $C_6H_5COOH$ (d) $CH_3CH(CH_3)CH_2COOH$

**Q.33.-** Which of the following reactions does not involve free radicals as reaction intermediate-

(a) Chlorination of alkanes (b) Nitration of alkanes

(c) Allylic substitution of alkenes (d) Hydrolysis of haloalkanes

**Q.34.-** Which of the following reactions involves benzyne as reaction intermediate-

(a) Reaction of chlorobenzene with alkali

(b) Reaction of chlorobenzene with sodamide

(c) Reaction of phenol with bromine water

(d) Cannizzaro's reaction

**Q.35.-** Consider the following reaction-

$$CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_3 + Cl_2 \xrightarrow{\text{uv light}} A$$

The major product A formed in the reaction is-

(a) $CH_3-\underset{\displaystyle CH_2Cl}{\underset{|}{CH}}-CH_2-CH_3$ (b) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_2-Cl$

(c) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{C(Cl)}}-CH_2-CH_3$ (d) $CH_3-CH-\underset{\displaystyle CH_3}{\underset{|}{CH(Cl)}}-CH_3$

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**Q.36.-**What is the role of $FeCl_3$ in halogenation of benzene-
(a) It acts like Catalyst
(b) It acts like Lewis acid
(c) It produces electrophiles for the reaction
(d) All the above

**Q.37.-** Which of the following acts like electrophile during nitration of benzene-
(a) $NO_2^+$ (b) $NO_2^-$
(c) Both (d) None

**Q.38.-** Consider following groups-

| -OAc | -OMe | $-OSO_2Me$ | $-SO_2CF_3$ |
|---|---|---|---|
| I | II | III | IV |

The order of leaving group ability is-
(a) I > II > III > IV (b) IV > III > I > III
(c) III > II > I > IV (d) II > III > I > IV

**Q.39.-**Which of the following reacts with conc. Nitric acid to form picric acid-
(a) Chloro benzene (b) Aniline
(c) Phenol (d) Anisole

**Q.40.-** Which or the following has highest nucleophilicity –
(a) $F^-$ (b) $OH^-$
(c) $CH_3^-$ (d) $NH_2^-$

**Q.41.-**Dehydration of ethanol by conc. $H_2SO_4$ at 443 K temperature gives-
(a) $CH_3OH$ (b) $CH_3$-O-$CH_3$
(c) $CH_2 = CH_2$ (d) None

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**Q.42.-** Consider the following reaction-



The major product A formed in the reaction is-

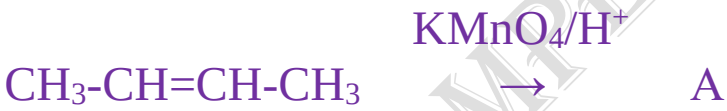
(a) 

(b) 

(c) 

(d) $CH_3$-COOH

**Q.43.-** Consider the following reaction-



The major product A formed in the reaction is-

(a) 

(b) 

(c) 

(d) $CH_3$-COOH

**Q.44.-** Consider following reaction -

$CH_3CH_2$-O-$CH_3$ + HI → Products

The mechanism involved in the reaction is-

(a) $SN^1$ (b) $SN^2$

(c) $E^1$ (d) $E^2$

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**Q.45.-**Which of the following will not form alkane by reacting with Grignard's reagent-

(a) Ethyne (b) Propyne

(c) 1- Butyne (d) 2- Butyne

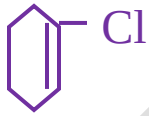
**Q.46.-** The bond angle in dimethyl ether is-

(a) $109^0 28'$ (b) $<109^0 28'$

(c) $>109^0 28'$ (d) Unpredictable

**Q.47.-** which of the following contains most reactive halogen-

(a) $CH_2=CH-Cl$ (b) $CH_3-CH=CH-Cl$

(c) $CH_2=CH-CH_2-Cl$ (d) 


**Q.48.-**In which of the following the halogen is ionic in nature-

(a) $CH_2=CH-Cl$ (b) $CH_3-CH=CH-Cl$

(c) $CH_2=CH-CH_2-Cl$ (d) 


**Q.49.-**Which of the following reduces carbonyl compounds to alcohols -

(a) Zn-Hg/Conc. HCl (b) $Pd/H_2$

(c) $LiAlH_4$. (d) Both (b) & (c)

**Q.50.-**Which of the following is also called carbolic acid-

(a) Phenol (b) Propyne

(c) Methanol (d) Dimethyl ether

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