# 13. ORGANIC CHEMISTRY

## PREVIOUS EAMCET BITS

1. Identify the alkyne in the following sequence of reactions **( 2009 E )**

$$\text{Alkyne} \xrightarrow[\text{lindlar's catalyst}]{H_2} A \xrightarrow{\text{Ozonolysis}} \underset{\text{only}}{B} \xleftarrow[\text{process}]{\text{wacker}} CH_2 = CH_2$$

1) $H_3C - C \equiv C - CH_3$ 2) $H_3C - CH_2 - C \equiv CH$

3) $H_2C = CH - C \equiv CH$ 4) $HC \equiv C - CH_2 - C \equiv CH$

Ans: 1

Sol:

$$H_3C - C \equiv C - CH_3 + H_2 \xrightarrow[\text{Lindlar's catalysis}]{Pd/BaSO_4} \underset{(A)}{H_3C - CH = CH - CH_3}$$

$$CH_3 - CH = CH - CH_3 \xrightarrow{\text{Ozonolysis}} \underset{(B)}{CH_3CHO}$$

$$H_2C = CH_2 + PdCl_2 + H_2O \xrightarrow[H^+]{CuCl_2} \underset{(B)}{CH_3CHO} + Pd + 2HCl$$

Wacker's process

2. One mole of alkene X on ozonolysis gave one mole of acetaldehyde and one mole of acetone . The IUPAC name of X is **( 2009 E )**

1) 2-methyl-2- butene 2) 2-methyl-l-butene

3) 2 butene 4) 1-butene

Ans: 1

Sol:

$$CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} = CH - CH_3 \xrightarrow{\text{Ozonolysis}} CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} = O + CH_3CHO$$

2-methyl-2-butene (x)

3. Which one of the following statements is true for the optical rotation exhibited by (2R, 3R) and (2S, 3S) - dibromobutene **( 2009 M )**

1) The direction and magnitude are same

2) The direction is opposite but magnitude is same

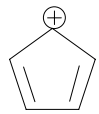
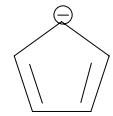
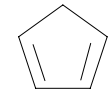
3) The direction is same but magnitude different

4) Both the direction and magnitude are different

Ans: 2

Sol. (2R, 3R) and (2S, 3S) forms are enantiomers of each other. They have equal and opposite optical reactions.

4. Which of the following do not obey Huckel's rule for Aromaticity **( 2009 M )**

I)  II)  III)  IV) 

1) all the above 2) I, II 3) III, IV 4) I, IV

Ans: 3

Sol: Structure I and II obey Huckels rule III and IV do not obey.

5. Match the following **( 2009 M )**

| List – I | List – II |
|---|---|
| A) $CH_4 \longrightarrow HCN$ | I) $NH_3$, $Al_2O_3$, 1000°C |
| B) $C_2H_2 \longrightarrow CH_3CHO$ | II) 450°c, heating |
| C) $C_2H_4 \longrightarrow C_2H_2OH$ | III) 40% $H_2SO_4$, 1% $HgSO_4$, 60°C |

D) $C_2H_6 \longrightarrow C_2H_4$

IV) con.$H_2SO_4$, $H_2O$, 80°C
V) Na, dry ether Δ

The correct match is

| | A | B | C | D | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|---|
| 1) | I | III | IV | II | 2) | I | II | IV | III |
| 3) | I | IV | III | II | 4) | V | I | IV | II |

Ans: 1

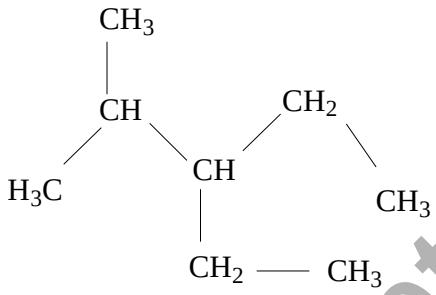
Sol: A) $\underset{A-I}{CH_4} + NH_3 \xrightarrow[Al_2O_3]{1000^\circ C} HCN + 3H_2$

B) $\underset{B-III}{HC \equiv CH} + H_2O \xrightarrow[30\%\ H_2SO_4]{1\%\ HgSO_4} CH_3 - CHO$

C) $\underset{(C)-IV}{H_2C = CH_2} + H_2O \xrightarrow[75-80\%c]{H_2SO_4} CH_3CH_2 - OH$

D) $\underset{D-II}{C_2H_6} \xrightarrow{450^\circ C} CH_2 = CH_2 + H_2$

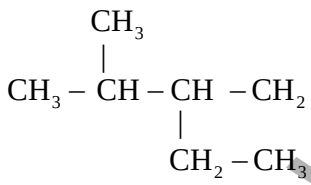
6. The correct IUPAC name of hydrocarbon X **( 2009 M )**



1) 2-methyl-3-ethyl pentane
2) 3-ethyl-3-methyl pentane
3) 3-isopropyl pentane
4) 1,1-diethyl-2-methyl propane

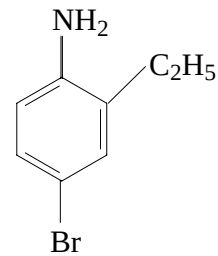
Ans: 1

Sol:



2-methyl –3-ethyl pentane

7. The latest IUPAC name f the following compound **( 2009 M)**

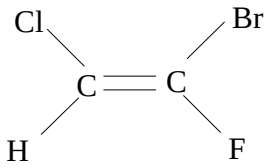


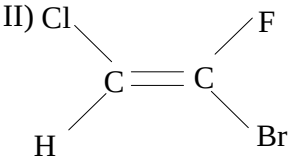
1) 2-ethyl-4-bromoaniline
2) 4-bromo-2-ethyl aniline
3) 4-bromo-2-ethyl benzene amine
4) 2-ethyl-4-bromo-benzene amine

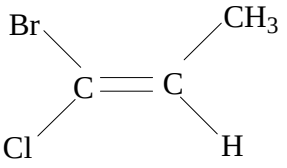
Ans: 3

Sol: The latest IUPAC name is 4-bromo-2-ethyl benzene amine

8. Which of the following compound (S) has Z configuration **( 2008 E )**

I) 

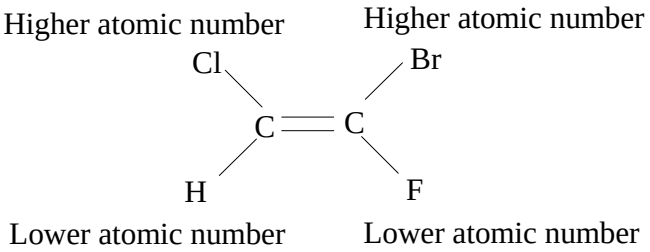
II) 

III) 

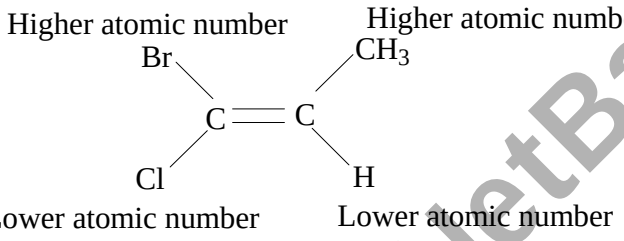
1) I only 2) II only 3) III only 4) I and III only

Ans: 4

Sol: I)




II)




If higher atomic numbers are same side of the double bond the configuration is Z.

9. What are x and y respectively in the following reaction **( 2008 E )**

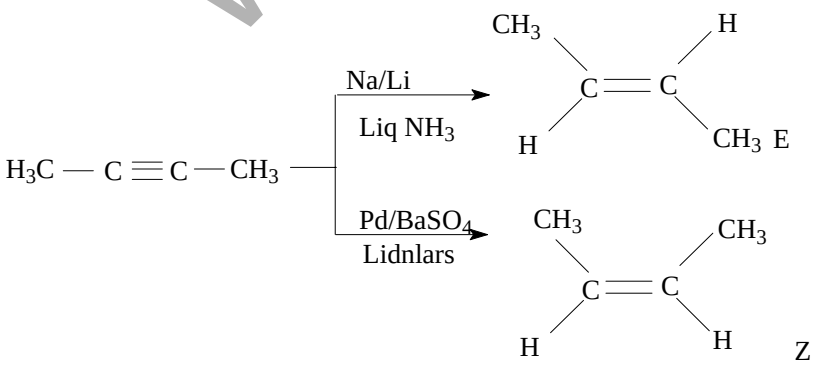
$$Z\text{ product} \xleftarrow{y} 2-\text{butyne} \xrightarrow{x} E\text{ product}$$

1) Na/ $NH_{3\ liq}$ and $Pd/BaSO_4 + H_2$ 2) Ni/140°C and $Pd/BaSO_4 + H_2$

3) Na/ 140°C and $Na/NH_{3(liq)}$ 4) $Pd/BaSO_4 + H_2$ and $Na/NH_{3\ (liq)}$

Ans:1

Sol:




10. According to Cohn – Ingold- Prelog sequence rules the correct order of priority for the given groups **( 2008 E )**

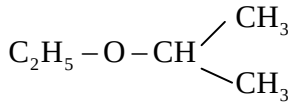
1) $-COOH > -CH_2OH > -OH > -CHO$ 2) $-COOH > -CHO > -CH_2OH > -OH$

3) $-OH > -CH_2OH > -CHO > -COOH$ 4) $-OH > -COOH > -CH_6 - CH_2 - OH$

Ans: 4

Sol: According to Cohn – Ingold- Prelog notation system the correct order is

$-OH > -COOH > -CHO > -CH_2OH$

11. The IUPAC name of  is **( 2008 E )**

1) Ethoxy propane 2) 1,1- diethyl ether 3) 2-ethoxy isopropane 4) 2-ethoxy propane

Ans: 4

Sol: IUPAC name is 2-ethoxy propane

12. Identify C in the following reaction **( 2008 E)**

$C_2H_2 \xrightarrow[\text{acid}]{\text{chromic}} \underline{A} \xrightarrow{NH_3} \underline{B} \xrightarrow[H_2O]{\Delta} \underline{C}$

1) $CH_3-CH_2-NH_2$ 2) $CH_3-CN$

3) $CH_3-CH_2-NH-CH_3$ 4) $CH_3-\overset{\overset{O}{\|}}{C}-NH_2$

Ans: 4

Sol: $HC\equiv CH + (O) + H_2O \xrightarrow[\text{acid}]{\text{chromic}} \underset{(A)}{CH_3COOH}$

$CH_3COOH + NH_3 \longrightarrow \underset{\underline{B}}{CH_3COONH_4} \xrightarrow[-H_2O]{\Delta} \underset{\underline{C}}{CH_3CONH_2}$

13. Identify 'B' in the following reaction

$CH_2=CH_2 + HCl \xrightarrow[AlCl_3]{\text{Anhydrous}} \underline{A} + 2[H] \xrightarrow[C_2H_5OH]{Zn-Cu} \underline{B} + HCl$ **( 2007 E )**

1) $CH_4$ 2) $C_2H_6$ 3) $C_2H_5Cl$ 4) $C_2H_5OH$

Ans: 2

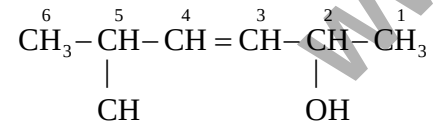
Sol: $CH_2=CH_2 + HCl \xrightarrow[AlCl_3]{\text{Anhydrous}} \underset{\underline{A}}{CH_3-CH_2-Cl}$

$\underset{A}{CH_3-CH_2-Cl} + 2[H] \xrightarrow[C_2H_5O_4]{Zn-Cu} \underset{B}{C_2H_6}$

14. IUPAC names of the compound $(CH_3)_2CH-CH=CH-CHOH-CH_3$ is **( 2007 E )**

1) 5-methyl hex-3-en-2-ol 2) 2-methyl hex-3-en-2-ol

3) 2-hydroxy-5-methyl-3-hexene 4) 5-hydroxy-2-methyl-3- hexene Ans: 1

Sol: 

5-methyl hex-3-en-2-ol

15. An aqueous solution of an organic compound 'A' on electrolysis liberates acetylene and $CO_2$ at anode A is **( 2007 E )**

1) potassium acetate 2) Potassium succinate

3) Potassium citrate 4) Potassium maleate

Ans: 4

Sol: $\begin{matrix} HC-COOK \\ \| \\ CH-COOK \end{matrix} + 2H_2O \xrightarrow{\text{Electrolysis}} \underset{\text{At anode}}{HC\equiv CH} + 2CO_2 + \underset{\text{At cathode}}{2KOH} + H_2$

16. $B \xleftarrow[\text{Catalyst}]{\text{Lindlars}} RC\equiv CR \xrightarrow{Na/NH_3} \underline{A}$

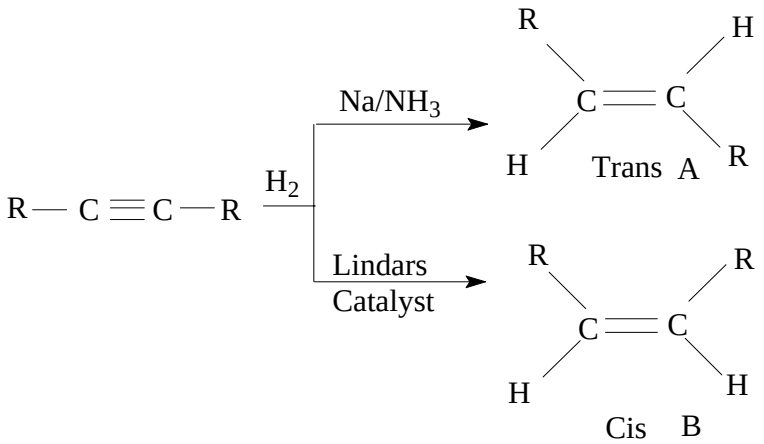
A and B are geometrical isomers then **( 2007 M )**

1) A is cis and B is Trans 2) A is trans and B is cis

3) A and B are cis
4) A and Bare trans

Ans: 2

Sol:




$$CH_3-CH_2-\underset{\displaystyle CH_2-CH_3}{\underset{|}{CH}}-\underset{|}{C}=CH_2$$

17. IUPAC name of is **( 2007 M )**

1) 2-methyl-3-ethyl-1-pentene
2) 3-methyl-4-methyl-4- pentene
3) 3-ethyl-2-methyl-1 pentene
4) 3-methyl-2-ethyl-1-pentene

Ans: 1

$$\overset{5}{CH_3}-\overset{4}{CH_2}-\underset{\displaystyle CH_2-CH_3}{\overset{3}{\underset{|}{CH}}}-\underset{|}{\overset{2}{C}}=\overset{1}{CH_2}$$

Sol:

3-ethyl-2-methyl-1-pentene

18. Match the following **( 2007 M )**

| Set – I | Set – II |
|---|---|
| A) $C_2H_5OH \xrightarrow[170°C]{conc.H_2SO_4}$ | 1) Methane |
| B) $CHI_3 \xrightarrow[Ag\ powder]{\Delta}$ | 2) Ethylene |
| C) $CH_3COONa \xrightarrow{electrolysis}$ | 3) Benzene |
| D) $CH_3COONa \xrightarrow[CaO\Delta]{NaOH}$ | 4) Acetylene |
| | 5) Ethane |

the correct set is

1) A-2, B-4, C-5, D-1
2) A-2, B-4, C-5, D-3
3) A-4, B-2, C-5, D-1
4) A-4, B-2, C-5, D-3

Ans: 1

Sol:

A) $C_2H_5O_{17} \xrightarrow[170°C]{conc.H_2SO_4} CH_2=CH_2$ A – 2

B) $2CHI_3+6Ag \xrightarrow{\Delta} CH\equiv CH$ B – 4

C) $CH_3COONa \xrightarrow{Electrolysis} CH_3-CH_3$ C – 5

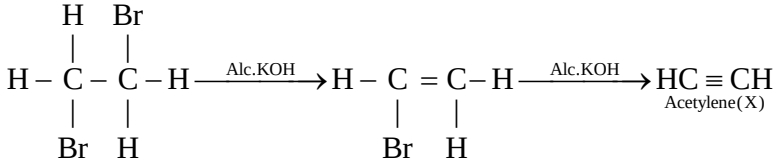
D) $CH_3COONa \xrightarrow[CaO\,\Delta]{NaOH} CH_4$ D – 1

19. 1,2-dibromo ethane reacts with alcoholic KOH to yield a product X. The hybridisation state of the carbons present in X, respectively are (2005 M)

1) $sp, sp$ 2) $sp^3, sp^3$ 3) $sp^2, sp^2$ 4) $sp^3, sp^2$

Ans: 1

Sol.



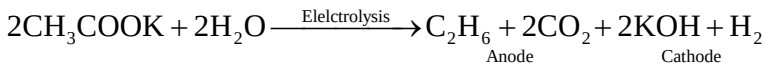
In acetylene charbon atom undergoes sp hybridisation

20. The compounds formed at anode in the electrolysis of an aqueous solution of potassium acetate are (2005 M)

1) $C_2H_6$ *and* $CO_2$ 2) $C_2H_4$ *and* $CO_2$ 3) $CH_4$ *and* $H_2$ 4) $CH_4$ *and* $CO_2$

Ans: 1

Sol.

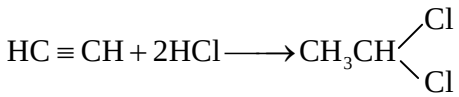


21. $C_2H_2 + 2HCl \rightarrow C_2H_4Cl_2$ is an example of ..... reaction (2005 M)

1) Addition 2) Hydrogenation 3) Substitution 4) Chlorination

Ans: 1

Sol.



Unsaturated compounds generally undergo in addition reactions. The above reaction is addition reaction.

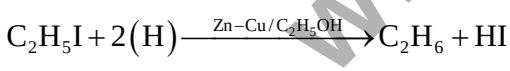
22. The chemical and the reaction conditions required for the preparation of ethane are (2004 E)

1) $C_2H_5l,\ Zn-Cu, C_2H_5OH$ 2) $CH_3Cl, Na, H_2O$

3) $KOOC-CH=CH-COOK$, electrolysis 4) $CH_3CO_2Na, NaOH, CaO, \Delta$

Ans: 1

Sol.



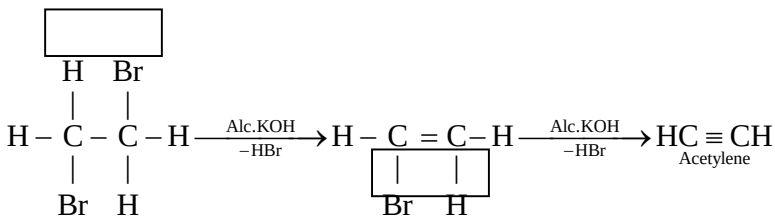
23. The following reaction is an example of - reaction $C_2H_4Br_2 \xrightarrow{alc\ KOH} C_2H_2$ (2004 E)

1) Addition 2) Dehydrobromination

3) Substitution 4) Debromination

Ans: 2

Sol.



In the above reaction HBr is eliminated Hence it is a dehydro-bromination reaction.

24. The metal used for the debromination reaction of 1,2-dibromo ethane. (2004 E)

1) Na 2) Zn 3) Mg 4) Li

Ans: 2

Sol. $\underset{\begin{array}{cc}| & |\\ Br & Br\end{array}}{CH_2-CH_2}+Zn\xrightarrow[\Delta]{Alcohol}H_2C=CH_2+ZnBr_2$

$\therefore$ The metal used is Zn

25. What is the molecular formula of the product formed when benzene is reacted with ethyl chloride in presence of anhydrous aluminium chloride? (2004 E)

1) $C_8H_{10}$ 2) $C_6H_6$ 3) $C_8H_8$ 4) $C_6H_5Cl$

Ans: 1

Sol. $C_6H_6+C_2H_5Cl\xrightarrow{Al.Cl_2}C_6H_5-C_2H_5+HCl$

(or)

$C_8H_{10}$

26. Match the following lists. (2004 E)

| List - I | List -II |
|---|---|
| a) ethane | 1) two sp carbons |
| b) ethylene | 2) six $sp^2$ carbons |
| c) acetylene | 3) two $sp^3$ carbons |
| d) benzene | 4) two $sp^2$ carbons |
| | 5) one sp and one $sp^2$ carbons |

The correct answer is

| | A | B | C | D |
|---|---|---|---|---|
| 1) | 3 | 4 | 1 | 2 |
| 2) | 4 | 5 | 3 | 2 |
| 3) | 3 | 1 | 2 | 5 |
| 4) | 2 | 3 | 4 | 5 |

Ans: 1

Sol. (A) Ethane $H_3C-CH_3$ 2 $sp^3$ carbons **( 2001 )**

(B) Ethylene $H_2C=CH_2$ 2 $sp^2$ carbons

(C) Acetylene $HC\equiv CH$ 2 sp carbons

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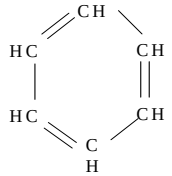
(D) Benzene  6$sp^2$ carbons

27. The reagent used for converting benzene to ethyl benzene is (2004 M)

1) $C_2H_5Cl$, anhydrous $AlCl_3$ 2) $C_2H_5Cl$, aqueous $AlCl_3$

3) $C_2H_5OH$, anhydrous $AlCl_3$ 4) $C_2H_5Cl, SOCl_2$

Ans: 1

Sol. $C_6H_6+C_2H_5-Cl\xrightarrow[AlCl_3]{Anhydrous}C_6H_5-C_2H_5+HCl$

28. Which one of the following compounds decolourises cold alkaline potassium permanganate soleuction? (2004 M)

1) $C_2H_6$ 2) $C_2H_5Cl$ 3) $C_2H_4$ 4) $C_2H_5OCH_3$

Ans: 3

Sol. Unsaturated compounds decolourises cold alkaline potassium permagarate solution

29. Wet ether is not used as a solvent in Wurtz reaction, because the water present in it. (2004 M)

1) hydrolyses RX to ROH 2) reduces RX to RH

3) destroy the Na metal 4) reacts with R-R

Ans: 3

Sol. The water vapour in wet ether destroys metal. So wet ether is not used in Wurth reaction

30. What are X and Y in the reaction $C_2H_4 + H_2SO_4 \xrightarrow{80^0C} X \xrightarrow[\Delta]{H_2O} Y$ (2004 M)

1) $C_2H_6, C_2H_5OH$ 2) $C_2H_4, C_2H_5SH$

3) $C_2H_5OSO_3H, C_2H_5OH$ 4) $C_2H_4, C_2H_5OH$

Ans: 3

Sol. $CH_2 = CH_2 + H_2SO_4 \xrightarrow{75-80°c} \underset{(X)}{CH_3CH_2OSO_3H} \xrightarrow{H_2O} \underset{(Y)}{CH_3 - CH_2 - OH} + H_2SO_4$

31. Which one of the following gases is liberated when ethyl alcohol is heated with methyl magnesium iodide

$C_2H_4 + H_2SO_4 \xrightarrow{80^0C} X \xrightarrow[\Delta]{H_2O}$ (2003 E)

1) methane 2) ethane 3) propane 4) carbondioxide

Ans: 1

Sol. $C_2H_5OH + CH_3MgI \xrightarrow{\Delta} CH_4 + Mg(OC_2H_5)I$

$\therefore$ The gas liberated is $CH_4$

32. Wurtz reaction of methyl iodide yields an organic compound X, which one of the following reactions also yields X? (2003 M)

1) $C_2H_5Cl + Mg \xrightarrow{dry\ ether}$ 2) $C_2H_5Cl + LiAlH_4 \longrightarrow$

3) $C_2H_5Cl + C_2H_5ONa \longrightarrow$ 4) $CHCl_3 \xrightarrow[\Delta]{Ag\ powder}$

Ans: 2

Sol. $2CH_3I + 2Na \xrightarrow{Ether} \underset{(X)}{C_2H_6}$

$C_2H_5Cl \xrightarrow{LiAlH_4} \underset{(X)}{C_2H_6} + HCl$

33. Which one of the following reagents is used for detection of unsaturation in alkenes (2003 M)

1) $NaOH + CaO$ 2) cold dilute alkaline $KMnO_4$

3) $Cl_2 / hV$ 4) $KOH / C_2H_5OH$

Ans: 2

Sol. Cold alkaline $KMnO_4$ is used in the detection of alkene and alkynes

34. Which one of the following compounds is prepared in the laboratory from benzene by a substitution reaction? (2003 M)

1) Glyoxal 2) Cyclohexane

3) Acetophenone 4) Hexa bromo cyclo hexane

Ans: 3

Sol. $C_6H_5 - H + CH_3COCl \xrightarrow{AlCl_3} \underset{\text{Acetophenone}}{C_6H_5COCH_3} + HCl$

35. In the following reaction, $C_2H_2 \xrightarrow[HgSO_4/H_2SO_4,60°C]{H_2O} X \underset{}{\overset{\text{Rearrangement}}{\rightleftharpoons}} CH_3CHO,$ what is X?(2001M)

1) $CH_3CH_2OH$ 2) $CH_3-O-CH_3$ 3) $CH_3CH_2CHO$ 4) $H_2C=CHOH$

Ans: 4

Sol. $HC\equiv CH \xrightarrow[HgSO_4/H_2SO_4\ 60°C]{H_2O} \underset{(X)}{CH_2=CH-OH} \rightleftharpoons CH_3CHO$

36. ------- test is used for detecting unsaturation in hydrocarbons (2001M)

1) Silver mirror 2) Lassiagne's 3) Carbylamine 4) Baeyer's

Ans: 4

Sol. Baeyer's test is used in the detection of unsaturation.

37. Which one of the following is used in the preparation of styrene ? (2001E)

1) $CH_3CHO$ 2) $P_2O_5$ 3) $CH_4$ 4) $C_6H_6$

Ans: 4

Sol. Benzene is used in the preparation of styrene.

38. Which one of the following compound converts methyl magnesium iodide to methane in one step (2002M)

1) $C_2H_5OC_2H_5$ 2) $C_2H_5Cl$ 3) $C_2H_4$ 4) $C_2H_5OH$

Ans: 4

Sol. $CH_3MgI + C_2H_5OH \longrightarrow CH_4 + Mg(OC_2H_5)I$

39. When acetylene gas is passed through solution, a white precipitate is formed. (2002M)

1) aqueous $AgNO_3$ 2) ammonical cuprous chloride

3) ammonical silver nitrate 4) aqueous potassium permanganate

Ans: 3

Sol. $HC\equiv CH + 2AgNO_3 + 2NH_4OH \longrightarrow Ag-C\equiv C-Ag + 2NH_4NO_3 + 2H_2O$

40. In the following reaction X and Y are respectively, $C_2H_2 \xrightarrow{X} C_6H_6 \xrightarrow{Y} C_6H_5SO_3H$ (2002M)

1) ion tube/heating $Na_2SO_4$ 2) Zn and conc. $H_2SO_4$

3) red hot iron tube and fuming $H_2SO_4$ 4) $H_2/Pd, BaSO_4$ dil $H_2SO_4$

Ans: 3

Sol. $C_2H_2 \xrightarrow[Cu\ tube]{Red\ hot} C_6H_6 \xrightarrow[heating]{General} C_6H_5SO_3H$

41. In the following reaction A and B respectively are, $C_2H_6 \xrightarrow{A} C_2H_5Cl \xrightarrow{Zn/HCl} B$ (2002M)

1) $Cl_2$ /UV light and $C_2H_6$ 2) $PCl_3$ and $C_2H_4$

3) HCl and $C_2H_6$ 4) $Cl_2$ and $C_2H_2$

Ans: 1

Sol. $C_2H_6 \xrightarrow[A]{Cl_2/U.V\ light} C_2H_5Cl \xrightarrow{Zn/HCl} \underset{B}{C_2H_6}$

42. The reacting ion in the nitration of benzene is (2002M)

1) $NO_2^-$ 2) $NO_2^+$ 3) $NO_3^-$ 4) $O_2^-$

Ans: 2

Sol. Nitration of benzene ring is due to attack of $NO_2^+$ ion (nitronium – ion) on the benzene ring.

43. In the following reaction X and Y are, $2C_2H_6 + 7O_2 \xrightarrow{\text{Combustion}} X + Y + \text{heat}$ (2002M)

1) $2C_2H_5OH, 6O_2$ 2) $4HCHO, 5H_2O$ 3) $4CO_2, 10H_2O$ 4) $4CO_2, 6H_2O$

ns: 4

Sol. $2C_2H_6 + 7O_2 \xrightarrow{\text{Combustion}} \underset{X}{4CO_2} + \underset{Y}{6H_2O} + \text{heat}$

44. The reactants and reaction conditions used in the preparation of ethane are (M2002)

1) $2CH_3I, Na / C_2H_5OH$ 2) electrolysis $C_2H_5COOK$

3) $C_2H_4, H_2, 27°C$ 4) $C_2H_5I, H_2, Zn-Cu, C_2H_5OH$

Ans: 4

Sol. $C_2H_5I + H_2 \xrightarrow[C_2H_5OH]{Zn-Cu} C_2H_6 + HI$

45. The reagent used for converting acetylene to oxalic acid is (E2002)

1) $HgSO_4 / H_2SO_4$ 2) $HgSO_4 / CH_3COOH$

3) $KMnO_4 / KOH$ 4) $Cr_2O_3 / H_2SO_4$

Ans: 3

Sol. $HC \equiv CH + 4(O) \xrightarrow{KMnO_4 / OH^- \, 25°c} \begin{matrix} COOH \\ | \\ COOH \end{matrix}$

46. The reaction condition used for converting 1,2-dibromo ethane to ethylene are (E2002)

1) $Zn$, alcohol, $\Delta$ 2) KOH, alcohol, $\Delta$ 3) $KOH$, water, $\Delta$ 4) $NaCl$, alcohol, $\Delta$

Ans: 1

Sol. $\begin{matrix} CH_2 - CH_2 \\ | \quad\quad | \\ Br \quad\quad Br \end{matrix} + Zn \xrightarrow[\Delta]{\text{Alcohol}} CH_2 = CH_2$

47. In the following reaction, A and B respectively are, $A \xrightarrow{HBr} C_2H_5Br \xrightarrow{B} A$ (E2002)

1) $C_2H_4$ and alcoholic $KOH / \Delta$ 2) $C_2H_5Cl$ and aqueous $Br_2 / \Delta$

3) $C_2H_5OH$ and aq $KOH / \Delta$ 4) $C_2H_2$ and $Br_2$

Ans: 1

Sol. $\underset{A}{CH_2 = CH_2} \xrightarrow{HBr} C_2H_5Br \xrightarrow[KOH]{\overset{B}{\text{Alcoholic}}} CH_2 = CH_2$

48. The chemicals used for preparing acetophenone are (E 2002)

A) $C_6H_6$ B) $CH_3COCH_3$ C) $CH_3COCl$ D) anhydrous

1) A,B,C 2) B,C,D 3) A,C,D 4) A,B,D

Ans: 3

Sol. $C_6H_6 + CH_3COCl \xrightarrow[AlCl_3]{\text{Anhydrous}} C_6H_5COCH_3$

49. What is the minimum quantity of methyl iodide required for preparing one mole of ethane by Wurtz reaction (At.wt.of iodine=127) (E2002)

1) 142 gram 2) 568 gram 3) 326 gram 4) 284 gram

Ans: 4

Sol. $CH_3\boxed{I + + 2Na + I}CH_3 \longrightarrow C_2H_6 + 2NaI$

2 mole of $CH_3$ I is required to prepare 1 mole of ethane. 2 moles of $CH_3$ I = 2(12+ 3x 127) = 284

50. In organic reactions sodium in liquid ammonia is used as **(2001 E )**
1) Reducing agent 2) Hydrolysing agent 3) Oxidising agent 4) precipitating agent
Ans: 1

Sol: In organic reaction sodium in liquid ammonium used as reducing agent

51. Which one of the following compounds is isomer of 1-butanol **(2001 M)**
1) 2-methyl-2-butanol 2) 2-methyl-1-butanol
3) 3- methyl -2-butanol 4) 2-methyl-1-propanol
Ans: 4

Sol: 1-butanol and 2-methyl -1-propanol are isomers and they have same molecular formula.

52. The structural formula of 2-methyl-2-butene is **( 2001 E)**
1) $CH_3-CH(CH_3)-CH=CH_2$ 2) $CH_3-CH_2-C(CH_3)=CH_2$
3) $CH_3-CH=CH-CH_3$ 4) $CH_3-CH=C(CH_3)-CH_3$
Ans: 4

Sol: Structure of 2-methyl-2-butene is

$$CH_3-CH=\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}-CH_3$$

53. Which one of the following pairs of compounds are functional isomers **( 2001 E)**
1) $CH_3CH_2CH_2OH$, $CH_3CH(OH)CH_3$
2) $CH_3CH_2CH_2CH_2OH, (CH_3)_2CHCH_2OH$
3) $CH_3CH_2CH_2OH, CH_3CH_2CH_2-Cl$
4) $CH_3CH_2CH_2OH$, $CH_3OCH_2CH_3$
Ans: 4

Sol: Alcohols and Ethers exhibits functional isomerism and functional isomers have same molecular formula.

54. ___ test is used for detecting unsatunation is hydrocarbon **( 2001 M)**
1) Silver mirror 2) Lassaigne's 3) Carbyl amine 4) Baeyer's
Ans:

Sol: Baeyeis test is used in the detection of unsaturated compounds unsalturated compounds decolorises the pink colour of Baeyer is reagent

55. $C_2H_2 \xrightarrow[HgSO_4/H_2SO_4\ 60°c]{H_2O} X \rightleftharpoons CH_3CHO$. What is X **( 2001 )**
1) $CH_3CH_2OH$ 2) $CH_3OCH_3$ 3) $CH_3CH_2CHO$ 4) $CH_2=CHOH$
Ans: 4

Sol: $C_2H_2 \xrightarrow[HgSO_4/H_2SO_4\ 60°c]{H_2O} \underset{\text{Vinyl alcohol(X)}}{CH_2=CH-OH} \xrightarrow{\text{tautomericm}} \underset{\text{Acetaldehyde}}{CH_3CHO}$

56. Methyl benzene can be prepared by reacting benzene with bromomethane in the presence of (2000)
1. $AlCl_3$ 2. $Br_2$/ $CCl_4$ 3. Ni /$H_2$ 4.dil. $H_2SO_4$
Ans: 1

Sol. $C_6H_6 + CH_3Br \xrightarrow{AlCl_3} C_6H_5CH_3 + HBr$
( Friedel craft Alkylation )

57. Ethylene reacts with $Br_2$ in $CCl_4$ to form x. When x is reacted with alcoholic $KOH$ . Y is formed. Here X and Y are (2000)
1) $BrCH_2-CH_2Br$ *and* $C_2H_2$ 2) $C_2H_5Br$ *and* $C_2H_4$

3) $C_2H_5Br$ *and* $C_6H_6$ 4) $C_2H_3Br_3$ *and* $C_2H_4$

Ans: 1

Sol.

$$CH_2=CH_2+Br_2 \xrightarrow{CCl_4} \underset{(X)}{CH_2(Br)-CH_2(Br)} \xrightarrow{\text{Alc.KOH}} \underset{(Y)}{HC\equiv CH}$$