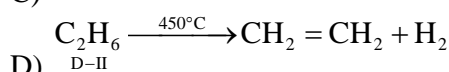
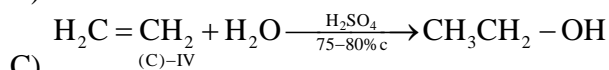
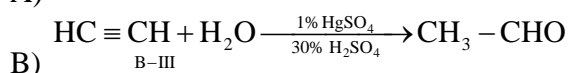
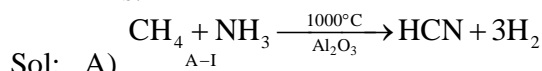
IV) $con.H_2SO_4, H_2O, 80^\circ C$ V) $Na, dry\ ether\ \Delta$

The correct match is

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

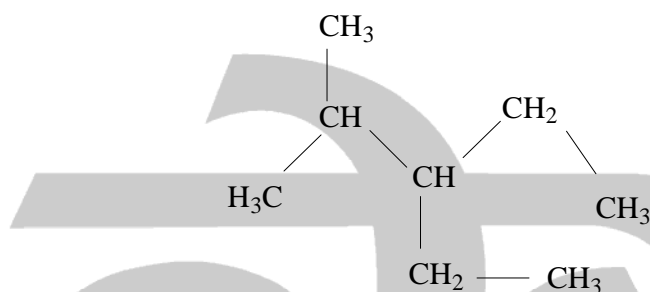
- | | A | B | C | D |
|----|---|----|----|-----|
| 2) | I | II | IV | III |
| 4) | V | I | IV | II |

Ans: 1



6. The correct IUPAC name of hydrocarbon X

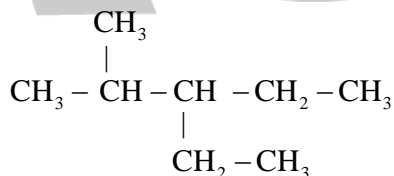
(2009 M)



- 1) 2-methyl-3-ethyl pentane
3) 3-isopropyl pentane

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

Ans: 1



Sol:

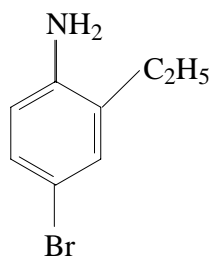
2-methyl-3-ethyl pentane

7. The latest IUPAC name of the following compound

(2009 M)

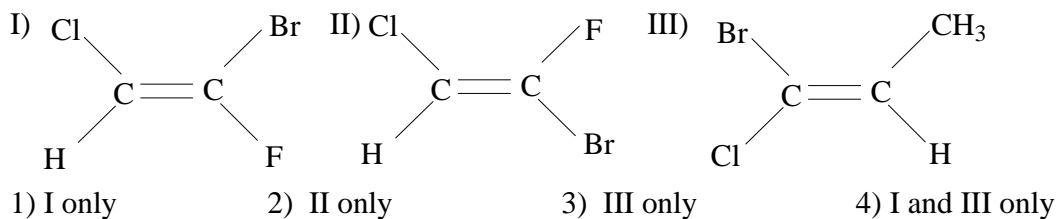
- 1) 2-ethyl-4-bromoaniline
2) 4-bromo-2-ethyl aniline
3) 4-bromo-2-ethyl benzene amine
4) 2-ethyl-4-bromo-benzene amine

Ans: 3



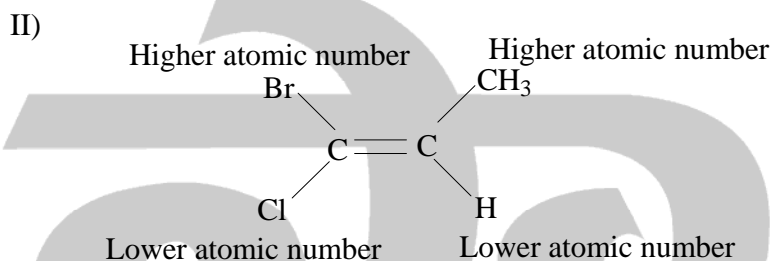
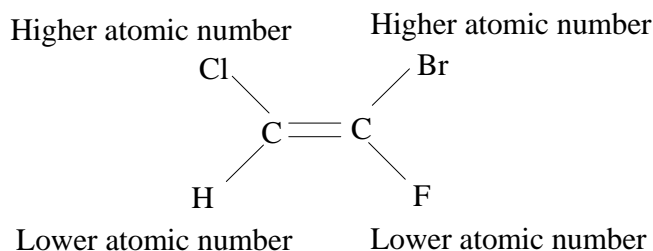
Sol: The latest IUPAC name is 4-bromo-2-ethyl benzene amine

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



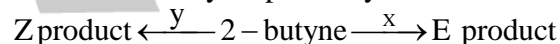
Ans: 4

Sol: I)



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

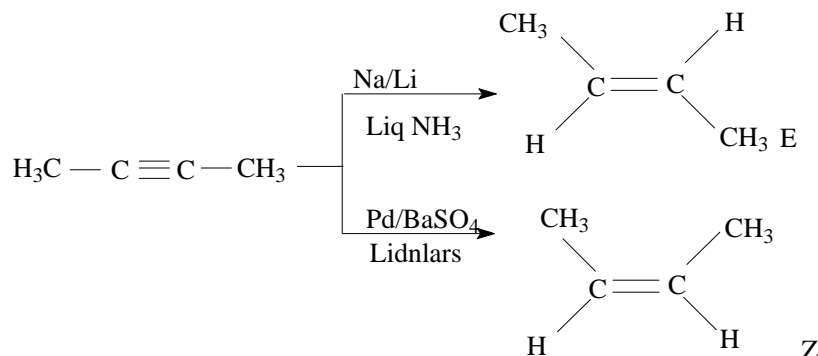
9. What are x and y respectively in the following reaction (2008 E)



- 1) Na/ NH₃ (liq) and Pd/BaSO₄ + H₂ 2) Ni/140°C and Pd/BaSO₄ + H₂
 3) Na/ 140°C and Na/NH₃(liq) 4) Pd/BaSO₄ + H₂ and Na/NH₃ (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 > -CH₂OH > -OH > -CHO 2) -COOH > -CHO > -CH₂OH > -OH
 3) -OH > -CH₂OH > -CHO > -COOH 4) -OH > -COOH > -CH₂-CH₂-OH

Ans: 4

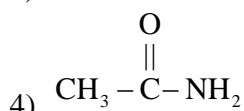
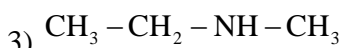
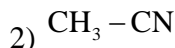
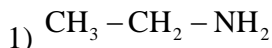
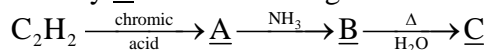
Sol: According to Cohn – Ingold- Prelog notation system the correct order is
 $-\text{OH} > -\text{COOH} > -\text{CHO} > -\text{CH}_2\text{OH}$

11. The IUPAC name of $\text{C}_2\text{H}_5-\text{O}-\text{CH}(\text{CH}_3)_2$ is (2008 E)
 1) Ethoxy propane 2) 1,1- diethyl ether 3) 2-ethoxy isopropane 4) 2-ethoxy propane

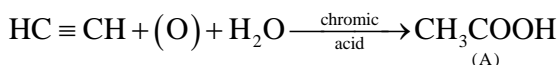
Ans: 4

Sol: IUPAC name is 2-ethoxy propane

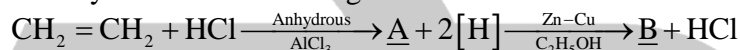
12. Identify C in the following reaction (2008 E)



Ans: 4

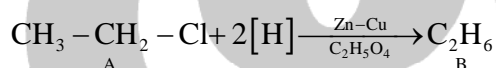
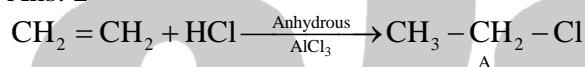


13. Identify 'B' in the following reaction

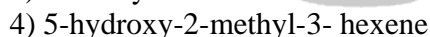
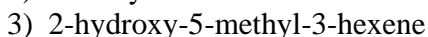
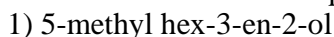


(2007 E)

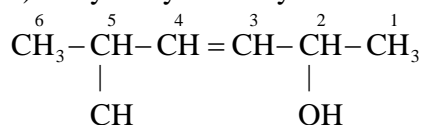
Ans: 2



14. IUPAC names of the compound $(\text{CH}_3)_2\text{CH}-\text{CH}=\text{CH}-\text{CHOH}-\text{CH}_3$ is (2007 E)



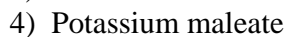
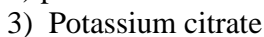
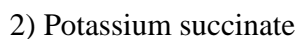
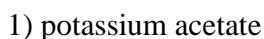
Ans: 1



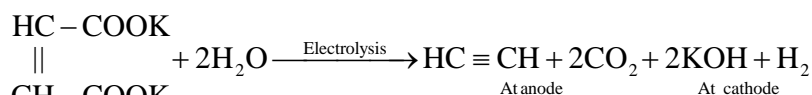
Sol:

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)



Ans: 4

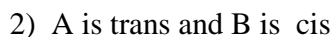
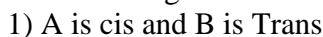


Sol: $\text{CH}-\text{COOK}$

16. $\text{B} \xleftarrow[\text{Catalyst}]{\text{Lindlars}} \text{RC}\equiv\text{CR} \xrightarrow{\text{Na}/\text{NH}_3} \text{A}$

A and B are geometrical isomers then

(2007 M)

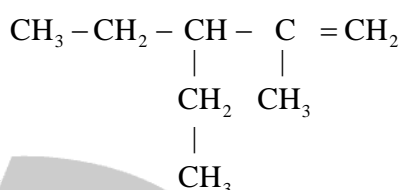
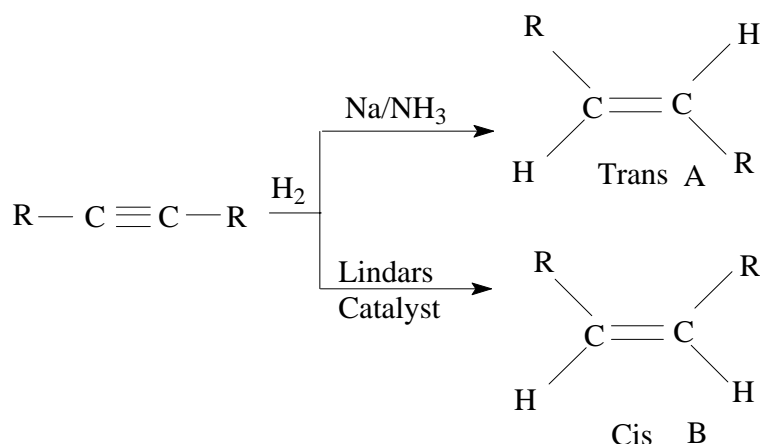


3) A and B are cis

4) A and B are trans

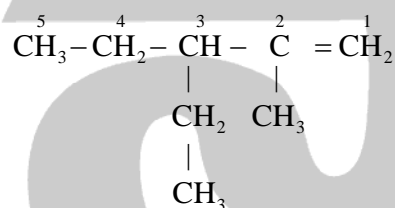
Ans: 2

Sol:



17. IUPAC name of (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

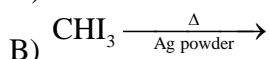
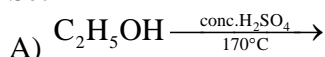


Sol:

3-ethyl-2-methyl-1-pentene

18. Match the following (2007 M)

Set - I



Set - II

1) Methane

2) Ethylene

3) Benzene

4) Acetylene

5) Ethane

the correct set is

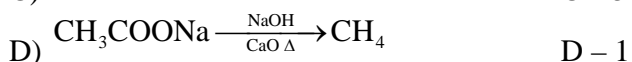
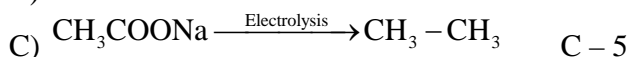
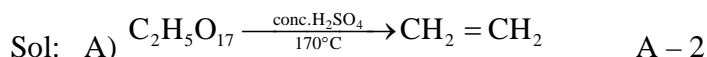
1) A-2, B-4, C-5, D-1

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

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

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

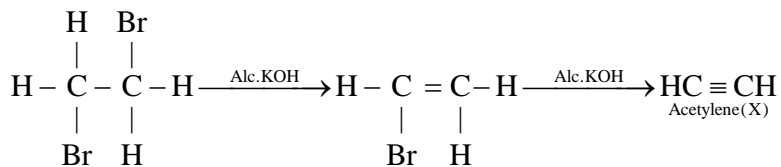
Ans: 1



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.

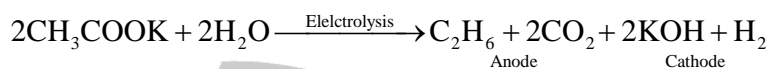
In acetylene carbon atom undergoes sp hybridisation

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.



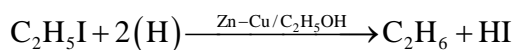
Unsaturated compounds generally undergo in addition reactions. The above reaction is addition reaction.

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

1) $C_2H_5I, Zn - Cu, C_2H_5OH$ 2) CH_3Cl, Na, H_2O
3) $KOOC - CH = CH - COOK$, electrolysis 4) $CH_3CO_2Na, NaOH, CaO, \Delta$

Ans: 1

Sol.

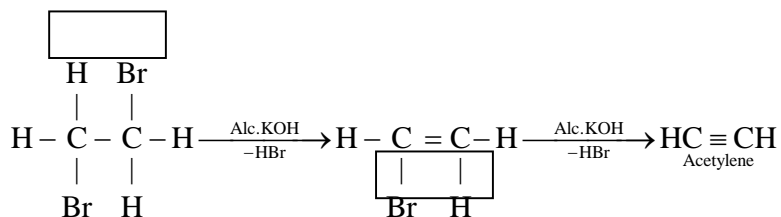


23. The following reaction is an example of - reaction $C_2H_4Br_2 \xrightarrow{\text{alc KOH}} C_2H_2$ (2004 E)

1) Addition 2) Dehydrobromination
3) Substitution 4) Debromination

Ans: 2

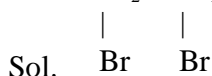
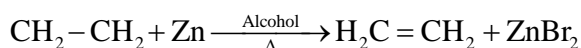
Sol.



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



∴ 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) $\text{C}_6\text{H}_5\text{Cl}$

Ans: 1



(or)
 C_8H_{10}

26. Match the following lists. (2004 E)

List - I

- a) ethane
 b) ethylene
 c) acetylene
 d) benzene

List -II

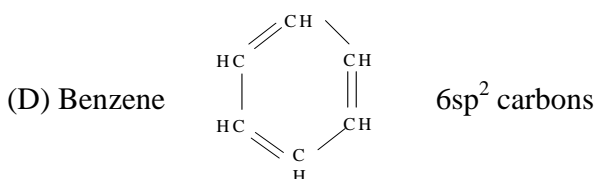
- 1) two sp carbons
 2) six sp^2 carbons
 3) two sp^3 carbons
 4) two sp^2 carbons
 5) one sp and one sp^2 carbons

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

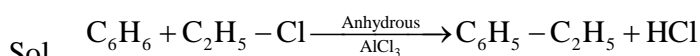
- Sol. (A) Ethane $\text{H}_3\text{C}-\text{CH}_3$ 2 sp^3 carbons
 (B) Ethylene $\text{H}_2\text{C}=\text{CH}_2$ 2 sp^2 carbons
 (C) Acetylene $\text{HC}\equiv\text{CH}$ 2 sp carbons



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

- 1) $\text{C}_2\text{H}_5\text{Cl}$, anhydrous AlCl_3 2) $\text{C}_2\text{H}_5\text{Cl}$, aqueous AlCl_3
 3) $\text{C}_2\text{H}_5\text{OH}$, anhydrous AlCl_3 4) $\text{C}_2\text{H}_5\text{Cl}$, SOCl_2

Ans: 1



28. Which one of the following compounds decolourises cold alkaline potassium permanganate solution? (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 permanganate 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

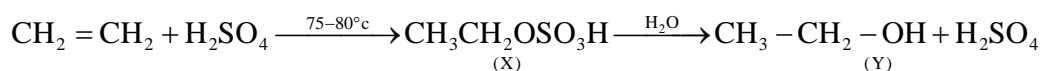
Ans: 3

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

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

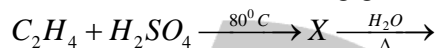
- 1) C_2H_6, C_2H_5OH 2) C_2H_4, C_2H_5SH
3) $C_2H_5OSO_3H, C_2H_5OH$ 4) C_2H_4, C_2H_5OH

Ans: 3



Sol.

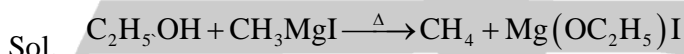
31. Which one of the following gases is liberated when ethyl alcohol is heated with methyl magnesium iodide



(2003 E)

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

Ans: 1



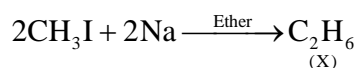
Sol.

∴ The gas liberated is CH_4

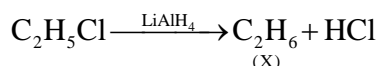
32. Wurtz reaction of methyl iodide yields an organic compound X, which one of the following reactions also yields X? (2003 M)

- 1) $C_2H_5Cl + Mg \xrightarrow{\text{dry ether}}$ 2) $C_2H_5Cl + LiAlH_4 \longrightarrow$
3) $C_2H_5Cl + C_2H_5ONa \longrightarrow$ 4) $CHCl_3 \xrightarrow[\Delta]{Ag \text{ powder}}$

Ans: 2



Sol.



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) $Cl_2 / h\nu$ 4) KOH / C_2H_5OH

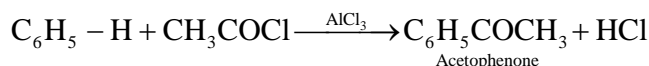
Ans: 2

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

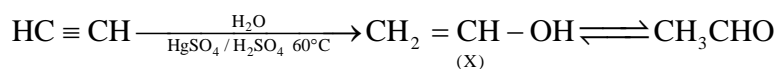
Ans: 3



Sol.

35. In the following reaction, $C_2H_2 \xrightarrow[HgSO_4/H_2SO_4, 60^\circ C]{H_2O} X \xrightarrow{\text{Rearrangement}} CH_3CHO$, 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. 36. ----- test is used for detecting unsaturation in hydrocarbons (2001M)
- 1) Silver mirror 2) Lassaigne'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

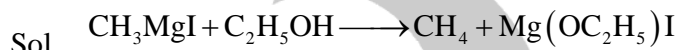
Ans: 4

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)



Ans: 4



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

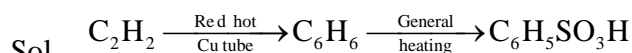
Ans: 3



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

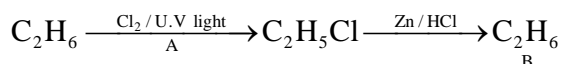
Ans: 3



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



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

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

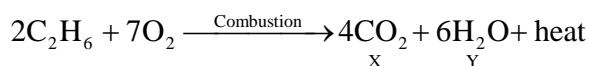
Ans: 2

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, $2\text{C}_2\text{H}_6 + 7\text{O}_2 \xrightarrow{\text{Combustion}} \text{X} + \text{Y} + \text{heat}$ (2002M)

- 1) $2\text{C}_2\text{H}_5\text{OH}, 6\text{O}_2$ 2) $4\text{HCHO}, 5\text{H}_2\text{O}$ 3) $4\text{CO}_2, 10\text{H}_2\text{O}$ 4) $4\text{CO}_2, 6\text{H}_2\text{O}$

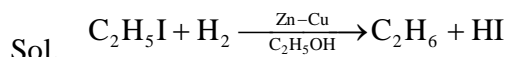
Ans: 4



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

- 1) $2\text{CH}_3\text{I}, \text{Na} / \text{C}_2\text{H}_5\text{OH}$ 2) electrolysis $\text{C}_2\text{H}_5\text{COOK}$
3) $\text{C}_2\text{H}_4, \text{H}_2, 27^\circ\text{C}$ 4) $\text{C}_2\text{H}_5\text{I}, \text{H}_2, \text{Zn} - \text{Cu}, \text{C}_2\text{H}_5\text{OH}$

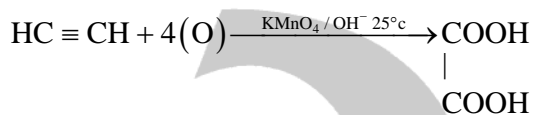
Ans: 4



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

- 1) $\text{HgSO}_4 / \text{H}_2\text{SO}_4$ 2) $\text{HgSO}_4 / \text{CH}_3\text{COOH}$
3) $\text{KMnO}_4 / \text{KOH}$ 4) $\text{Cr}_2\text{O}_3 / \text{H}_2\text{SO}_4$

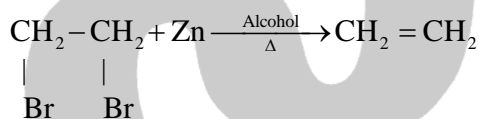
Ans: 3



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

- 1) Zn , alcohol, Δ 2) KOH , alcohol, Δ 3) KOH , water, Δ 4) NaCl , alcohol, Δ

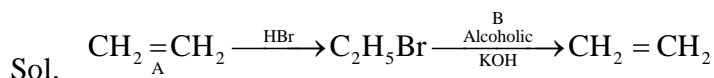
Ans: 1



Sol. 47. In the following reaction, A and B respectively are, $\text{A} \xrightarrow{\text{HBr}} \text{C}_2\text{H}_5\text{Br} \xrightarrow{\text{B}} \text{A}$ (E2002)

- 1) C_2H_4 and alcoholic KOH / Δ 2) $\text{C}_2\text{H}_5\text{Cl}$ and aqueous Br_2 / Δ
3) $\text{C}_2\text{H}_5\text{OH}$ and aq KOH / Δ 4) C_2H_2 and Br_2

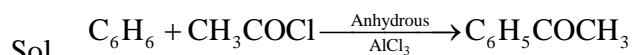
Ans: 1



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



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



- 2 mole of CH_3I is required to prepare 1 mole of ethane. 2 moles of $\text{CH}_3\text{I} = 2(12 + 3 \times 127) = 284$
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 ammonia used as reducing agent

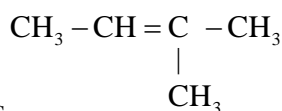
51. Which one of the following compounds is isomer of 1-butanol (2001 M)
 1) 2-methyl-2-butanol 2) 2-methyl-1-butanol
 3) 3-methyl-2-butanol 4) 2-methyl-1-propanol

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

Ans: 4



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

53. Which one of the following pairs of compounds are functional isomers (2001 E)

- 1) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
 2) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$, $(\text{CH}_3)_2\text{CHCH}_2\text{OH}$
 3) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_3\text{CH}_2\text{CH}_2 - \text{Cl}$
 4) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_3\text{OCH}_2\text{CH}_3$

Ans: 4

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

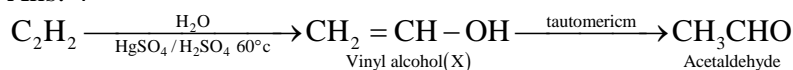
54. _____ test is used for detecting unsaturation in hydrocarbon (2001 M)
 1) Silver mirror 2) Lassaigne's 3) Carbyl amine 4) Baeyer's

Ans:

Sol: Baeyer's test is used in the detection of unsaturated compounds. Unsaturated compounds decolorise the pink colour of Baeyer's reagent.

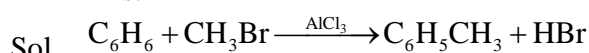
55. $\text{C}_2\text{H}_2 \xrightarrow[\text{HgSO}_4/\text{H}_2\text{SO}_4, 60^\circ\text{c}]{\text{H}_2\text{O}} \text{X} \rightleftharpoons \text{CH}_3\text{CHO}$. What is X (2001)
 1) $\text{CH}_3\text{CH}_2\text{OH}$ 2) CH_3OCH_3 3) $\text{CH}_3\text{CH}_2\text{CHO}$ 4) $\text{CH}_2 = \text{CHOH}$

Ans: 4



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

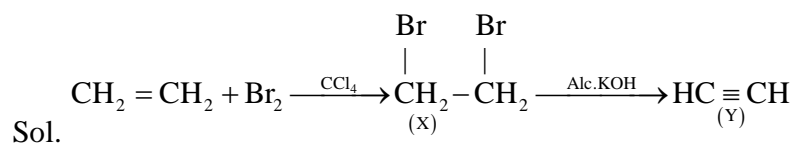


(Friedel craft Alkylation)

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) $\text{BrCH}_2 - \text{CH}_2\text{Br}$ and C_2H_2 2) $\text{C}_2\text{H}_5\text{Br}$ and C_2H_4

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

Ans: 1



नाम