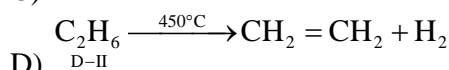
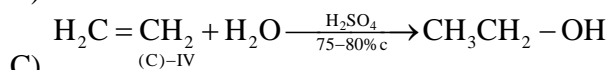
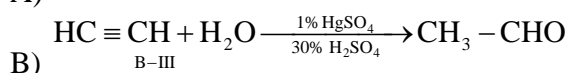
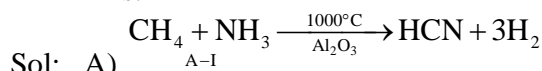
IV) con.  $H_2SO_4$ ,  $H_2O$ ,  $80^\circ C$ V) Na, dry ether  $\Delta$ 

The correct match is

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

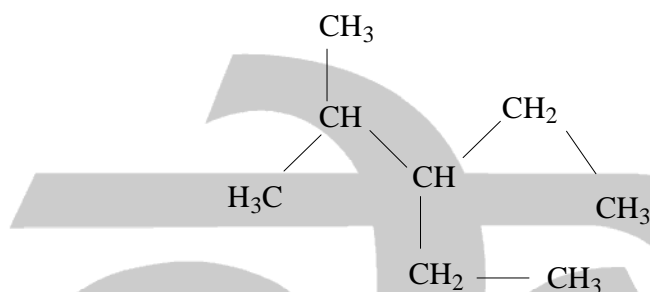
- |    |   |    |    |     |
|----|---|----|----|-----|
|    | A | B  | C  | D   |
| 2) | I | II | IV | III |
| 4) | V | I  | IV | II  |

Ans: 1



6. The correct IUPAC name of hydrocarbon X

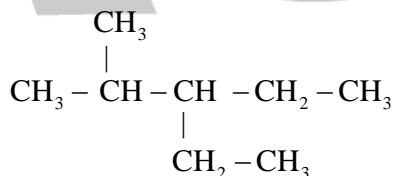
(2009 M)



- 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:

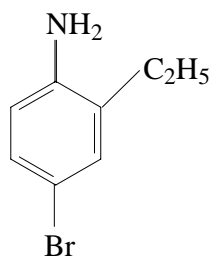
2-methyl-3-ethyl pentane

7. The latest IUPAC name of the following compound

(2009 M)

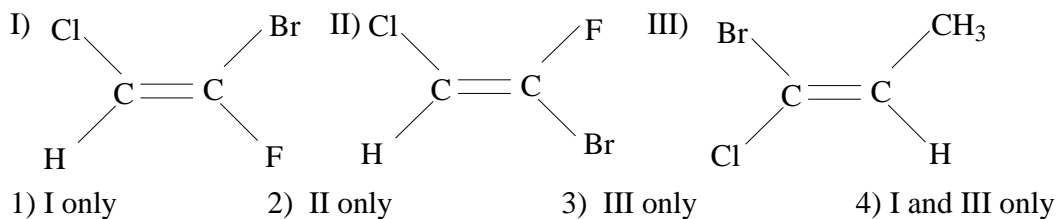
- 1) 2-ethyl-4-bromoaniline  
2) 4-bromo-2-ethyl aniline  
3) 4-bromo-2-ethyl benzene amine  
4) 2-ethyl-4-bromo-benzene amine

Ans: 3



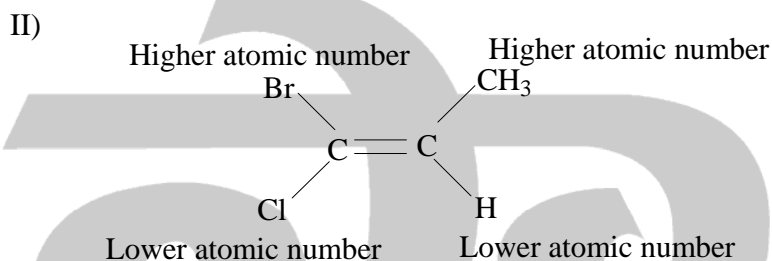
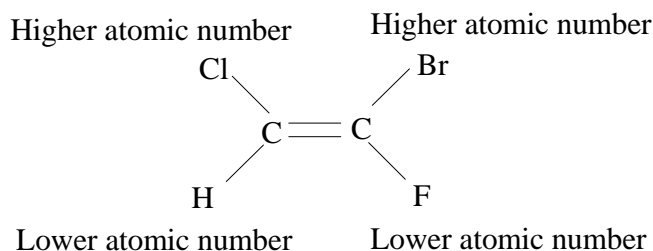
Sol: The latest IUPAC name is 4-bromo-2-ethyl benzene amine

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



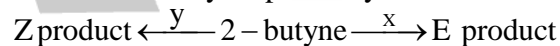
Ans: 4

Sol: I)



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

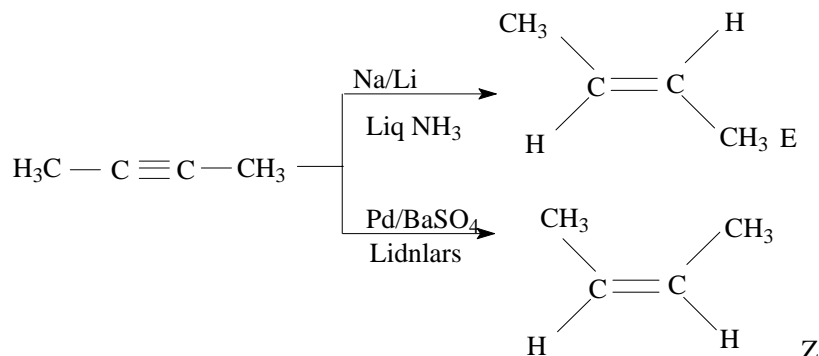
9. What are x and y respectively in the following reaction (2008 E)



- 1) Na/ NH<sub>3</sub> (liq) and Pd/BaSO<sub>4</sub> + H<sub>2</sub>      2) Ni/140°C and Pd/BaSO<sub>4</sub> + H<sub>2</sub>  
 3) Na/ 140°C and Na/NH<sub>3</sub>(liq)      4) Pd/BaSO<sub>4</sub> + H<sub>2</sub> and Na/NH<sub>3</sub> (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<sub>2</sub>OH > -OH > -CHO      2) -COOH > -CHO > -CH<sub>2</sub>OH > -OH  
 3) -OH > -CH<sub>2</sub>OH > -CHO > -COOH      4) -OH > -COOH > -CH<sub>2</sub>-CH<sub>2</sub>-OH

Ans: 4

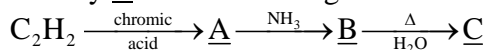
Sol: According to Cohn – Ingold- Prelog notation system the correct order is  
 $-\text{OH} > -\text{COOH} > -\text{CHO} > -\text{CH}_2\text{OH}$

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

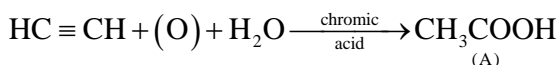
Sol: IUPAC name is 2-ethoxy propane

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



- 1)  $\text{CH}_3-\text{CH}_2-\text{NH}_2$  2)  $\text{CH}_3-\text{CN}$   
 3)  $\text{CH}_3-\text{CH}_2-\text{NH}-\text{CH}_3$  4)  $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$

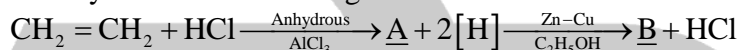
Ans: 4



Sol:



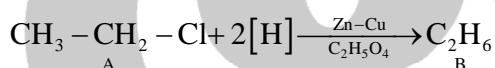
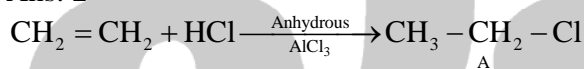
13. Identify 'B' in the following reaction



- 1)  $\text{CH}_4$  2)  $\text{C}_2\text{H}_6$  3)  $\text{C}_2\text{H}_5\text{Cl}$  4)  $\text{C}_2\text{H}_5\text{OH}$

Ans: 2

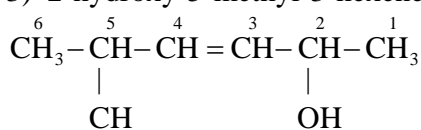
Sol:



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



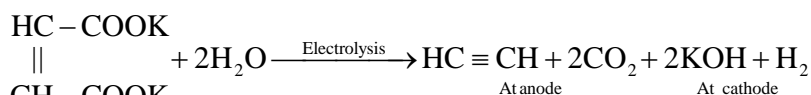
Sol:

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

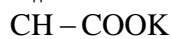
15. An aqueous solution of an organic compound 'A' on electrolysis liberates acetylene and  $\text{CO}_2$  at anode A is (2007 E)

- 1) potassium acetate 2) Potassium succinate  
 3) Potassium citrate 4) Potassium maleate

Ans: 4



Sol:



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)

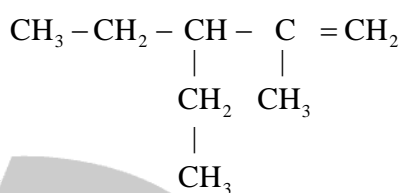
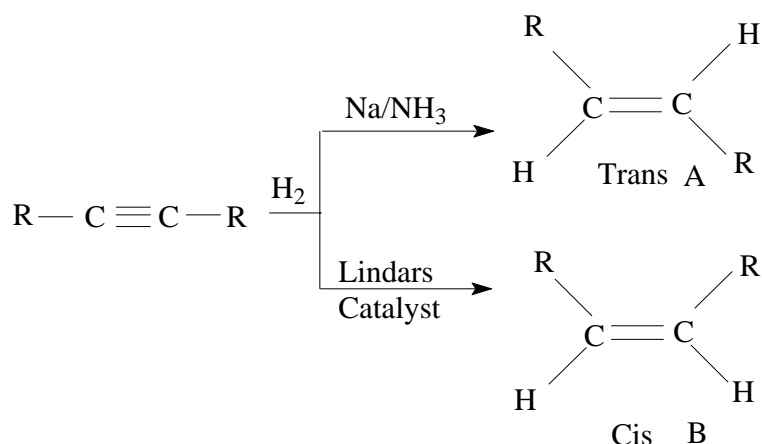
- 1) A is cis and B is Trans 2) A is trans and B is cis

3) A and B are cis

4) A and B are trans

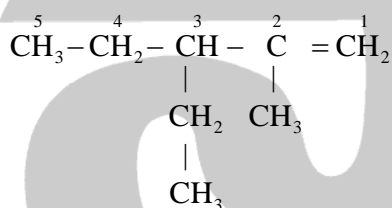
Ans: 2

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

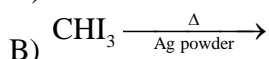
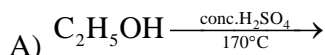


Sol:

3-ethyl-2-methyl-1-pentene

18. Match the following

Set - I



Set - II

1) Methane

2) Ethylene

3) Benzene

4) Acetylene

5) Ethane

the correct set is

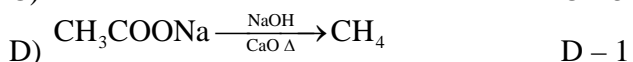
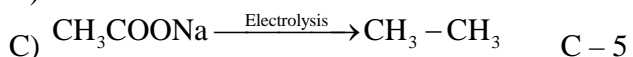
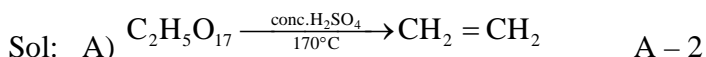
1) A-2, B-4, C-5, D-1

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

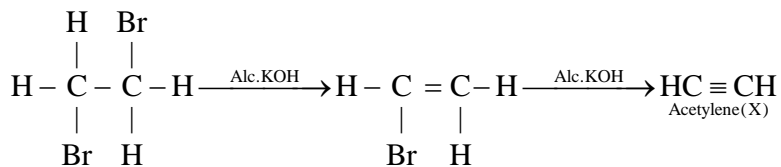
Ans: 1



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.

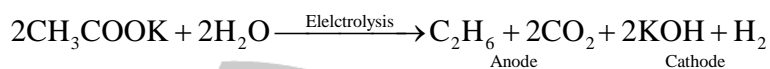
In acetylene carbon atom undergoes sp hybridisation

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.



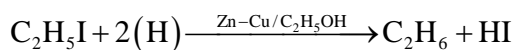
Unsaturated compounds generally undergo in addition reactions. The above reaction is addition reaction.

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.

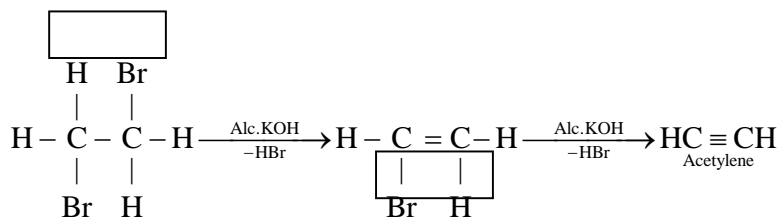


23. The following reaction is an example of - reaction  $C_2H_4Br_2 \xrightarrow{\text{alc KOH}} C_2H_2$  (2004 E)

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

Ans: 2

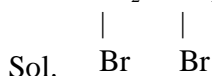
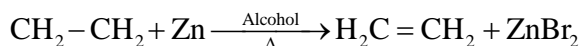
Sol.



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)  $\text{C}_8\text{H}_{10}$                       2)  $\text{C}_6\text{H}_6$                       3)  $\text{C}_8\text{H}_8$                       4)  $\text{C}_6\text{H}_5\text{Cl}$

Ans: 1



(or)  
 $\text{C}_8\text{H}_{10}$

26. Match the following lists. (2004 E)

List - I

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

List -II

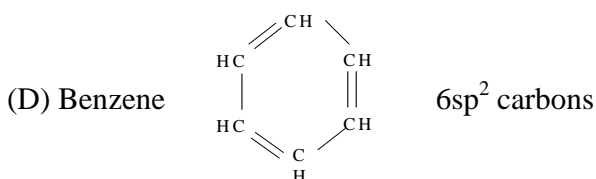
- 1) two  $\text{sp}$  carbons  
 2) six  $\text{sp}^2$  carbons  
 3) two  $\text{sp}^3$  carbons  
 4) two  $\text{sp}^2$  carbons  
 5) one  $\text{sp}$  and one  $\text{sp}^2$  carbons

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

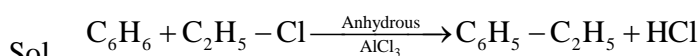
- Sol. (A) Ethane  $\text{H}_3\text{C}-\text{CH}_3$  2  $\text{sp}^3$  carbons  
 (B) Ethylene  $\text{H}_2\text{C}=\text{CH}_2$  2  $\text{sp}^2$  carbons  
 (C) Acetylene  $\text{HC}\equiv\text{CH}$  2  $\text{sp}$  carbons



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

- 1)  $\text{C}_2\text{H}_5\text{Cl}$ , anhydrous  $\text{AlCl}_3$                       2)  $\text{C}_2\text{H}_5\text{Cl}$ , aqueous  $\text{AlCl}_3$   
 3)  $\text{C}_2\text{H}_5\text{OH}$ , anhydrous  $\text{AlCl}_3$                       4)  $\text{C}_2\text{H}_5\text{Cl}$ ,  $\text{SOCl}_2$

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

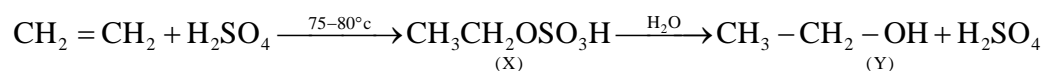
Ans: 3

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



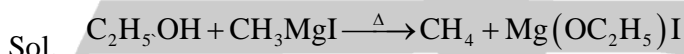
Sol.

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



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

Ans: 1



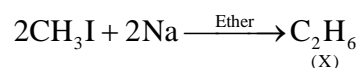
Sol.

∴ The gas liberated is  $CH_4$

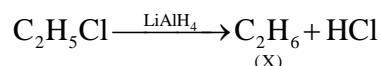
32. Wurtz reaction of methyl iodide yields an organic compound X, which one of the following reactions also yields X? (2003 M)

- 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)  $KOH / C_2H_5OH$

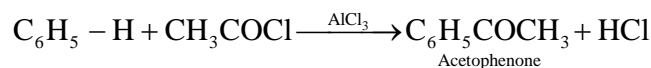
Ans: 2

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

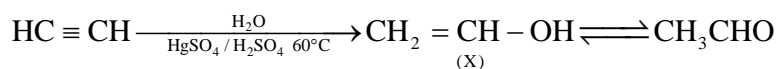
Ans: 3



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)  $C_6H_6$

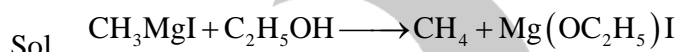
Ans: 4

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

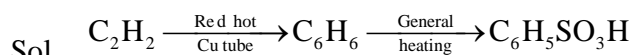
Ans: 3



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  $H_2SO_4$

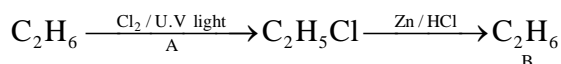
Ans: 3



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.



- 2 mole of  $\text{CH}_3\text{I}$  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

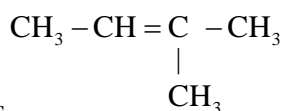
51. Which one of the following compounds is isomer of 1-butanol **(2001 M)**  
 1) 2-methyl-2-butanol 2) 2-methyl-1-butanol  
 3) 3-methyl-2-butanol 4) 2-methyl-1-propanol

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.

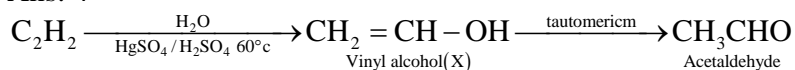
54. \_\_\_\_\_ test is used for detecting unsaturation in hydrocarbon **(2001 M)**  
 1) Silver mirror 2) Lassaigne's 3) Carbyl amine 4) Baeyer's

Ans:

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

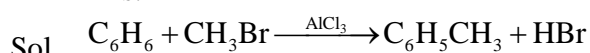
55.  $\text{C}_2\text{H}_2 \xrightarrow[\text{HgSO}_4/\text{H}_2\text{SO}_4, 60^\circ\text{C}]{\text{H}_2\text{O}} \text{X} \rightleftharpoons \text{CH}_3\text{CHO}$ . What is X **(2001)**  
 1)  $\text{CH}_3\text{CH}_2\text{OH}$  2)  $\text{CH}_3\text{OCH}_3$  3)  $\text{CH}_3\text{CH}_2\text{CHO}$  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.  $\text{AlCl}_3$  2.  $\text{Br}_2/\text{CCl}_4$  3.  $\text{Ni}/\text{H}_2$  4. dil.  $\text{H}_2\text{SO}_4$

Ans: 1



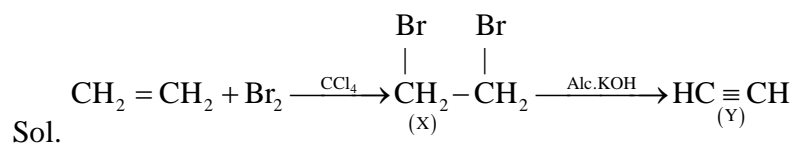
(Friedel craft Alkylation)

57. Ethylene reacts with  $\text{Br}_2$  in  $\text{CCl}_4$  to form x. When x is reacted with alcoholic  $\text{KOH}$ , Y is formed. Here X and Y are **(2000)**

- 1)  $\text{BrCH}_2 - \text{CH}_2\text{Br}$  and  $\text{C}_2\text{H}_2$  2)  $\text{C}_2\text{H}_5\text{Br}$  and  $\text{C}_2\text{H}_4$

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

Ans: 1



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