CHEMISTRY

BOOKS - TARGET CHEMISTRY (HINGLISH)

ORGANIC REACTIONS

Mcqs

1. The compound 'A' with molecular formula 'C_4H_8' is subjected to the hydrogenation oxidation reaction sequence by using $BH_3 - THF$ complex and hydrogen peroxide to give butan-1-ol(B). The compound 'B' on treatment with pyridinium chlorochromate (PPC) gives compound 'C' . Identify the compounds 'A' and 'C'.

A. $CH_3 - CH_2 - CH = CH_2, CH_3 - CH_2 - CH_2 - CHO$

B. $CH_3 - CH = CH - CH_3, CH_3 - \underset{\underset{O}{||}}{C} - CH_2 - CH_3$

C. $CH_3 - \underset{\underset{CH_3}{|}}{C} = CH_2, CH_3 - \underset{\underset{CH_3}{|}}{C}\ H - CHO$

D. $CH_3 - CH_2 - CH = CH_2, CH_3 - CH_2 - \underset{\underset{O}{||}}{C} - CH_3$

Answer: A

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2. A linear chain compound 'A' $(C_5H_{10}O_2)$ gives brisk effervescence of CO_2 when treated with saturated aqueous $NaHCO_3$ solution. It reacts with chlorine gas in the presence of catalytic amount of red phosphorous to give compound 'B' . Identify compound 'A' and 'B' . Identify the chiral isomer of compound 'A'/

A. Pentanoic acid , 2-chloropentanoic acid, 2-methylbutanoic acid

B. 2-Methyl butanoic acid, 2-chloro-2-methylbutanoic acid , pentnoic acid

C. Pentanoic acid, 2-chloropentanoic acid, 2,2-dimethylpropanoic acid

D. 2,2-Dimethylpropanoic acid, 2-chloro-2-Methylpropanoic acid, pentanoic acid

Answer: A

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3. Compound 'A' when treated with conc. HCl and anhydrous $ZnCl_2$ at room temperature instantaneously gives compound 'B' with molecular formula C_4H_9Cl. When compound 'B' is further boiled with aqueous KOH, it gives back compound 'A'.

$$'A' \xrightarrow{HCl + \text{anhydrous } ZnCl_2} \underset{[C_4H_9Cl]}{B} \xrightarrow[\Delta]{aq.KOH} 'A'$$

Identify the compound 'A' and 'B'.

A.

$$CH_3 - CH_2 - CH_2 - CH_2 - OH, CH_3 - CH_2 - CH_2 - CH_2 - C$$

B. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - OH, CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - Cl$

C. $CH_3 - \underset{\underset{CH_3}{|}}{C}H - CH_2 - OH, CH_3 - \underset{\underset{CH_3}{|}}{C}H - CH_2 - Cl$

D. $CH_3 - CH_2 - \overset{CH_3}{\underset{|}{C}}H - OH, CH_3 - CH_2 - \overset{CH_3}{\underset{|}{C}}H - Cl$

Answer: B

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4. Ehtyl bromide (A) when boiled with sodium methoxide undergoes substitution reaction and gives compound 'B'. Identify compound 'B' and the name of the reaction .

A. $CH_3 - CH_2 - O - CH_3$, Williamson's synthesis

B. $CH_3 - CH_2 - CH_2 - OH$, Williamson's synthesis

C. $CH_3 - CH = CH_2$, Freidel-Crafts reaction

D. $CH_3 - C \equiv CH$, Freidel-Crafts reaction

Answer: A

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5. Compound 'A' turns the blue litmus paper red and gives voilet colour when treated with aqueous neutral ferric chloride solution. It reacts with chloroform in the presence of aqueous NaOH to give salicylaldehyde. Idetify the compound 'A' and name the reaction.

A. Phenol, Reimer-Tiemann reaction

B. o-Hydroxbenzoic acid, Reimer -Teimann reaction

C. p-Hydroxybenzoic acid, Stephen reaction

D. m-Hydroxybenzoic acid , Gattermann reaction

Answer: A

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6. Benzonitirle (A) reacts with stannous chloride in the presence of dil HCl to give a reduction product 'B' . Compound 'B' on acid hydrolysis gives

compound 'C' . Identify compound 'B' and 'C' . What is the nitration product of compound 'C' ?

A. Benzylimine hydrochloride, Benzaldehyde m-dinitrobenzene

B. Benzylimine hydrchloride, Benzaldehyde m-nitrobenzaldehyde

C. Benzylimine hydrochloride, Benzanilide, p-nitrobenzanilide

D. p-Chlorobenzonitrile , p-chlorobenzaldehyde, p-nitrobenzaldehyde

Answer: B

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7. In the presence of dry ether, formaldehyde (A) undergoes nucleophilic addition with Grignard reagent (obtained from methyl iodine and metallic magnesium) to give compound 'B' . The compound 'B' on heating with diazomethane in the presence of fluorboric acid gives compounds 'C'. Identify compound 'B' and 'C' .

A. Methan-1-ol, 1-methoxyethane

B. Methan-1-ol, 1-methoxymethane

C. Ethan-1-ol, 1-methoxyethane

D. Prapan-1-ol, 1-methoxypropane

Answer: C

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8. Compound 'A' undergoes auto oxidation in the presence of cobalt mapthenate as catalyst at 423 K in alkaline medium followed by heating with dil H_2SO_4 to give compound 'B' and acetone as byproduct of the reaction. Compound 'B' is isolated by distillation and further heated the nitrating mixture giving picric acid . Identify the compound 'A' and 'B'.

A. Phenol, Trinitrotoluence

B. Isopropylbenzene, Phenol

C. Cumene, Phenol

D. Both (B) and (C)

Answer: D

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9. n-Propyl bromide (A) when boiled with aqueous KOH undergoes hydrolysis forming compound 'B' . The compound 'B' reacts with concentrated sulphuric acid at 443 K to yields compound 'C'. Identify the compound 'B' and 'C'.

A. $CH_3 - CH = CH_2, CH_3 - C = CH$

B. $CH_3 - \underset{CH_3}{\overset{|}{C}}\ H - OH, CH_3 - CH = CH_2$

C. $CH_3 - CH_2 - CH_2 - OH, CH_3 - CH = CH_2$

D. $CH_3 - \underset{OH}{\overset{|}{C}}\ H - CH_2 - Br, CH_3 - CH = CH - Br$

Answer: C

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10. A mixed ether on heating with dil. H_2SO_4 under pressure gives mixture of two alcohols viz, methanol and ethanol. In this reaction , 80% yield of each alcohol is obtained. If the mass obtained for ethanol is 1.5 g. Calculate the mass of mixed ether used for the reaction.

A. 2.4 g

B. 3 g

C. 1.5 g

D. 1 g

Answer: A

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11. When phenol (M) is heated with zinc dust, it gives compound 'N' which is the first aromatic compound studied. When compound 'N' is treated with carbon monoxide and hydrogen chloride under high pressure in the

presence of anhydrous aluminium chloride and cuprous chloride , it gives compound 'Q'. Identify the compound 'N' and 'Q'.

A. 

B. 

C. 

D. 

Answer: B

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12. The compound 'A' i.e. butyronitrile is subjected to the Stephen reaction by using $SnCl_2$ and dil. HCl followed by acid hydrolysis to give compound 'B' , which is having a buttery odour and it is used in margarine. Addition of hydrogen cyanide to compound 'B' in the presence of small amount of base gives compound 'C'. Identify the compounds 'B' and 'C'.

A. $CH_3CH_2CH_2COOH, CH_3CH_2CH_2\overset{O}{\overset{||}{C}}-CN$

B. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - CH_3, CH_3 - \overset{\overset{CN}{|}}{\underset{||}{C}} H - CH_2 - CH_3$

C. $CH_3CH_2CHO, CH_3 - CH_2 - \overset{\overset{CN}{|}}{C} H - CH_3$

D. $CH_3CH_2CH_2CHO, CH_3 - CH_2 - CH_2 - \overset{\overset{CN}{|}}{C} H - OH$

Answer: D

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13. The compound 'A' i.e. propanamide is treated with bromide and alcoholic sodium hydroixde to give compound 'B'. The acid catalysed addition of valeraldehyde to compound 'B' yields compound 'C'. Which is well known as a Schiff base. What are the structures of compounds 'B' and 'C' ?

A.

$$CH_3 - CH_2 - NH_2, CH_3 - CH_2 - CH_2 - \overset{\overset{H}{|}}{C} = N - CH_2 - CH_3$$

B.

$$CH_3 - CH_2 - CH_2 - NH_2, CH_3 - CH_2 - CH_2 - \overset{H}{\underset{|}{C}} = N - CH_2$$

C. $CH_3 - NH_2, CH_3 - CH_2 - CH_2 - CH_2 - \overset{H}{\underset{|}{C}} = N - CH_3$

D.

$$CH_3 - CH_2 - NH_2, CH_3 - CH_2 - CH_2 - \overset{H}{\underset{|}{C}} = N - CH_2 - CH_3$$

Answer: A

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14. 2-Bromobutane (A) is treated with Nal in the presence of dry acetone to give compound 'B'. The compound 'B' is boiled with moist silver oxide to give compound 'C'. Identify compounds 'B' and 'C' . How many optical isomers are possible for compound 'C' /

A. 2-iodobutane, Butan-2-ol, 2 isomers

B. 3-Iodopentane, pentan-3-ol , 4 isomers

C. 2-Iodobutane , Butan-2-ol , 4 isomers

D. 3-Iodopentane-Pentan-3-ol, 2 isomers

Answer: A

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15. Compounds A and B are the structural isomers of each other with molecular formula C_4H_9Br. Compound 'A' is a linear chain and optically inactive while 'B' is optically active. When compound 'A' is treated with aq. KOH solution, it gives compound 'C' whereas compound 'B' when treated with aq.KOH solution, it gives compound 'D'. Identify compound 'C' and 'D'.

A. $CH_3-CH_2-CH_2-CH_2-OH, CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OH$

B. $CH_3-\overset{\overset{CH_3}{|}}{C}H-CH_2-OH, H_3C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OH$

C. $CH_3-CH_2-CH_2-CH_2-OH, H_3C-\underset{|}{\overset{\overset{CH_2-CH_3}{|}}{CH}}-OH$

D. $CH_3-CH-CH_2-OH, CH_3-CH(CH_2-CH_3)-OH$

Answer: C

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16. Compound A i.e. an aromatic hydrocarbon of molecular mass $78 gmol^{-1}$ is treated with compound 'B' with molecular mass $78.5 gmol^{-1}$ in the presence of anhydrous $AlCl_3$ to give compound 'C' . Compound 'C' gives positive test but shows negative results with Fehling solution, Tollen's reagent and Schiff reagent . Identify compound A and B.

A. 

B. 

C. 

D. 

Answer: B

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17. The compounds 'A' undergoes Koble's reaction in the presence of CO_2 and NaOH to give compound 'B' . Compound 'B' when treated with acetic anhydride in acidic medium , gives acetylsalicylic acid i.e. aspirin. Identify the compound 'A' and 'B'.

A. Salicyladehyde, Salicylic acid

B. Phenol, salicylic acid

C. phenol, salicyladehyde

D. Phenol , Benzaldehyde

Answer: B

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18. The compound 'A' is heated under pressure with excess of aqueous NaOH . Then the current of carbon dioxide is passed through the

resultant aqueous solution to yield compound 'B'. The compound 'B' on heating with formaldehyde under pressure furnishes a thermosetting polymer called as 'Bakelite'. What is the name of compound 'A' ?

A. Cumene

B. Chlorobenzene

C. Benzene sulphonic acid

D. Aniline

Answer: B

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19. Ethyl bromide is subjected to ammonolysis reaction to give compound 'P'. Compound 'P' reacts with nitrous acid in cold condition to give compound 'Q' with the liberation of nitrogen gas. What is the molecular weight of the compound 'Q' ?

A. $46gmol^{-1}$

B. $60 gmol^{-1}$

C. $74 gmol^{-1}$

D. $100 gmol^{-1}$

Answer: A

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20. $CH_3(--CH_2--)_{10}CHO \xrightarrow[ii)H^+/H_2O]{i)NaBH_4} 'X' \xrightarrow{H_2SO_4} 'Y' \xrightarrow{NaOH} 'Z'$

The compound 'Z' in the above reaction is used as an anionic detergent in soap industry. Give the hydrophilic and (II) hydrophobic parts of the compound 'Z' .

A. $\overset{(I)}{CH_3(--CH_2--)_{10}CH_2OSO_3^-} \quad \overset{(II)}{Na^+}$

B. $\overset{(I)}{CH_3(--CH_2--)_{10}CH_2-} \quad \overset{(II)}{-OSO_3^-Na^+}$

C. $\overset{(I)}{Na^+} \quad \overset{(II)}{CH_3(--CH_2--)_{10}CH_2OSO_3^-}$

D. $\overset{(I)}{-OSO_3^-Na^+} \quad \overset{(II)}{CH_3(--CH_2--)_{10}CH_2-}$

Answer: D

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21. Which one of the following polymers belongs to the class of addition polymers ? Which catalyst is used to prepare its monomer form ethanol ?

i. PHBV ii. Polyethene

iii.Nylon-6 iv Dextron

A. i, $K_2Cr_2O_7$

B. iv.$K_2Cr_2O_7$

C. $ii.\ Al_2O_3$

D. iii. Al_2O_3

Answer: D

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22. 5.6 g of but-2-ene is taken in a 250 mL round bottom flask. 3.7 g of conc, HCl is added to it and the resultant mixture is stirred till the reaction is complete . The practical yield of the reaction is 50% , Calculate the mass of the product formed.

A. 0.35 g

B. 5.6 g

C. 0.35 g

D. 9.25 g

Answer: B

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23. The compound 'A' is widely used in cosmetices as a nail-polish remover. This compound 'A' forms compound 'B' on treatment with hydroxylamine. The compound 'B' is easily reduced by sodium and ethanol to give isopropylamine. Identify the compound 'A'.

A. Acetone

B. Dimethyl ketone

C. Propanone

D. all of these

Answer: D

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