

Daily Tutorial Sheet 5

JEE Advanced (Archive)

59. B + NaOH / $I_2 \longrightarrow C_6H_5$ COONa + CHI $_3$ (B is methyl Ketone)

$$\Rightarrow B = \bigcirc C + CH_3 - CH_3 - CH_2CH_3$$

$$A = \bigcirc C + CH_3 + CH_3C - CH_3 + CH_3C - CH_3$$

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$$A = \bigcirc C + CH_3 + CH_3$$

$$A = \bigcirc C + CH$$

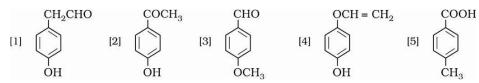
60.
$$CH = CH_{2} \xrightarrow{Br_{2}/CCl_{4}} CH - CH_{2}Br \xrightarrow{NaNH_{2}} CH = CH \xrightarrow{HgSO_{4}} COCH_{2}$$

$$(C) \xrightarrow{NH_{2}NHCONH_{2}} CCH_{3}$$

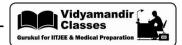
$$(C) \xrightarrow{NH_{2}NHCONH_{2}} CCH_{3}$$

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61. Various possible isomers of $C_8H_8O_2$ are as below :



- (i) As both the compounds A and B form a silver mirror with Tollen's reagent, they have aldehydic group in their structure. In these compounds, B gives positive test with $FeCl_3$ solution. So it must also have phenolic group in its structure.
 - Hence, compound A is p-methoxybenzaldehyde and B is p-hydroxyphenylacetaldehyde.
- (ii) Compound C gives positive iodoform test, so it must have CH₃CO group in its structure. Hence compound C is p-hydroxyphenylmethyl ketone.
- (iii) Compound D is readily extracted in aqueous NaHCO₃, so it must have -COOH group in its structure. So, compound D is p-methylbenzoic acid.
- (iv) Compound E on hydrolysis gives 1, 4-dihydroxybenzene hence it is p-hydroxyphenylmethyl either. Hence the structures of all the five compounds are : A = 3, B = 1, C = 2, D = 5, E = 4



63. OH O CHO
$$KMnO_4$$
 COOH

- \triangleright Enol form of β-Diketones is highly stable.
- Phenyl ketones on oxidation give benzoic acid.

65.(B)
$$H_3C$$
 OH H_3C H_3C OH H_3C H_3C H_3C

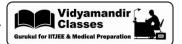
66.(c)
$$NaOH/I_2$$
 ONa H^+ OH

$$C_6H_5CHO \xrightarrow{\hspace*{4cm} C_6H_5CH} C_6H_5CH = N-NH \xrightarrow{\hspace*{4cm} NO_2} NO_2$$

$$Reagent (AgNO_3) \hspace*{4cm} White ppt.$$

$$C_6H_5 - CH - CN OH (Cyanohydrin)$$

- ► CN⁻ is nucleophile, used for cyanohydrin formation.
- \triangleright I⁻ is nucleophile and form yellow precipitate with AgNO₃ not white.



O NaBH₄ OH PBr₃ Br Mg/ether MgBr Mg/ether
$$H_2$$
 OH H_2 OH H_2 OH H_2 OH H_2 OH H_2 OH H_3 OH H_4 OH H_2 OH H_4 OH H_5 OH

72.(B) 73.(A) 74.(D)

74.(D) $J \rightarrow PhCHO$; $K \rightarrow PhCOCH_3$; $L \rightarrow PhCOOK$