L C KUMAWAT
PGT-CHEMISTRY
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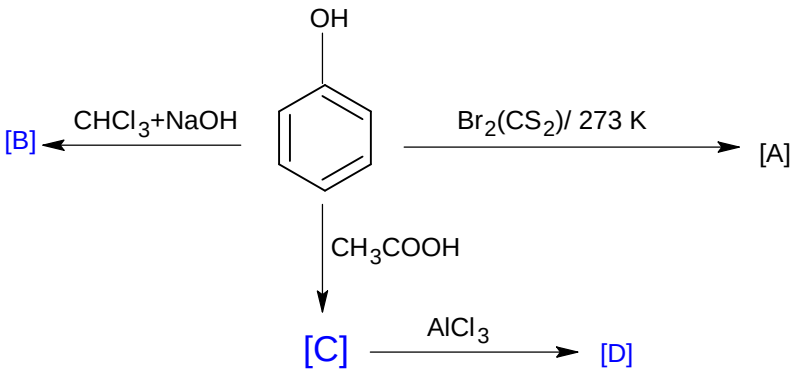
Question Paper

Unit-7 Functional Group –II (Alcohols,Phenols And Ethers)

Q1 A compound A ($C_8H_{10}O$) upon treatment with alkaline solution of iodine gives a yellow precipitate.The filtrate on acidification gives a white solid B ($C_7H_6O_2$). Write the structures of A & B.

Q2 Identify A,B,C and D in the following:



Q3 An organic compound (A) has 76.6% C ,6.38% H.Its vapour density is 47.It gives characteristics colours with $FeCl_3$ solution.When (A) treated with CO_2 and NaOH at 120° C under pressure gives (B) which on acidification gives (C). (C) reacts with acetyl chloride to give (D) which is a well known pain killer.Identify (A),(B),(C) and (D).

Q4 An organic compound 'A ' having molecular formula C_6H_6O gives a characteristics colour with aqueous $FeCl_3$ solution .When 'A' is treated with CO_2 and NaOH at 400K under pressure ,compound 'B' is obtained.The compound 'B' upon acidification gives compound 'C' which reacts with acetyl chloride to form 'D'.It is a popular pain killer.Deduce the structures of A,B,C and D.

Q5 An alcohol [A] having molecular formula ($C_4H_{10}O$) on oxidation with acidified potassium dichromate gives acid [B] ($C_4H_8O_2$). Compound [A] when dehydrated with conc.H_2SO_4 at 443 K gives compound [C].Treatment of [c] with aqueous H_2SO_4 gives compound [D] having molecular formula $C_4H_{10}O$ which is an isomer of [A].Compound [D] is resistant to oxidation but compound [A] can be easily oxidised.Identify [A],[B],[C] and [D] .

Q6 The acid catalysed hydration of the compound A produces the compound B and C and not D.

Acoount for this.

$$(CH_3)_3CCH=CH_2 \xrightarrow{H_3O^+} (CH_3)_2C(OH)CH(CH_3)_2 + (CH_3)_3CCH(OH)CH3 + (CH_3)_3CCH_2\ CH_2OH$$

(A) (B) (C) (D)

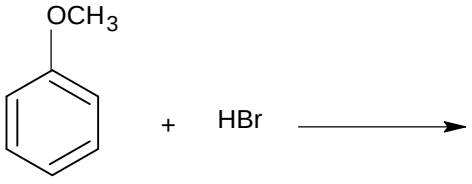
Q7 The following reaction gives two products .Write their structures.

$$(CH_3)_2CHOCH_3 \xrightarrow[\text{Heat}]{\text{HI (excess)}}$$

Q8 Two compounds [A] and [B] have molecular formula C_2H_6O. On reacting with HI ,[A] gives alkyl iodide and water while [B] gives alkyl iodide and alcohol.What are the compounds [A] and [B] ? Write the reactions involved.

Q9 Complete the reactions :

(I) $CH_3\text{-}CH_3(CH_3)\text{-}O\text{-}CH_2\text{-}CH_3 \xrightarrow{HI}$

(II) 

(III) $CH_3\text{-}CH_2\text{-}CH_2\text{-}OCH_3 + HBr \longrightarrow$

Q10 Compound [A] $C_4H_{10}O$ is found to be soluble in sulphuric acid .[A] does not react with sodium or potassium permanganate .On heating with excess of HI ,it is converted into a single alkyl halide.What is compound [A].