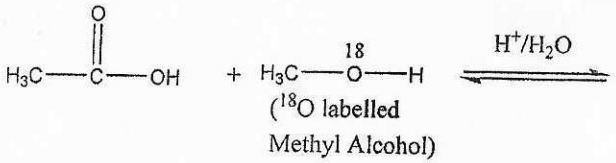
(d) 

(5×3=15)

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1215

Unique Paper Code : 2172011202

Name of the Paper : Haloalkanes, Arenes, Haloarenes, Alcohols, Phenols, Ethers and Epoxides

Name of the Course : **B.Sc (Hons) Chemistry**

Semester : II

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** parts of a question together.
3. Attempt **any four** questions in all. **Question no 1** is compulsory. Each question carries **15** marks.

P.T.O.

1. Write the product(s) with complete chemical reaction for the following. Name the reaction.

(a) Phenol is treated with carbon dioxide under pressure in presence of sodium hydroxide.

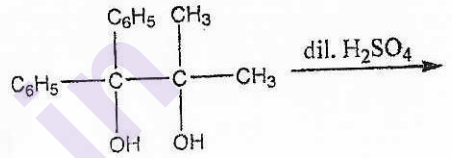
(b) Benzene is treated with isopropyl chloride in presence of $AlCl_3$.

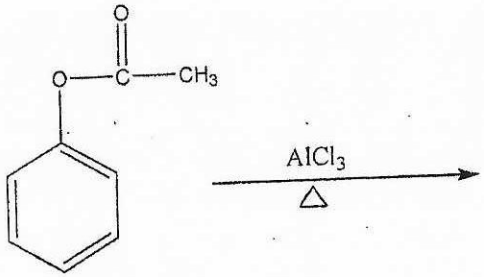
(c) Allyl Phenyl ether is heated at temperature of 200°C.

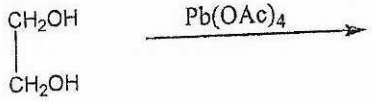
(d) Resorcinol is treated with CH_3CN in presence of $ZnCl_2$.

(e) 2-Bromopentane is treated with sodium methoxide in ethanol (3×5=15)

6. Give the mechanism for the following reactions (any three)

(a) 

(b) 

(c) 

P.T.O.

(b) Hydrolysis of substituted epoxide under acidic and basic conditions.

(c) Industrial preparation of phenol from benzene. Why this process is considered to be an economical process? (5×3=15)

5. Explain the following:

(a) Advantages of Friedal Craft's Acylation over Friedal Craft's Alkylation.

(b) Only m-methoxyaniline is obtained when o-bromomethoxybenzene or m-bromomethoxybenzene is treated with $NaNH_2$ in liquid NH_3

(c) Secondary and tertiary alkyl halide are not used in the Willamson synthesis reaction. (5×3=15)

2. Give reason for the following **(any three):**

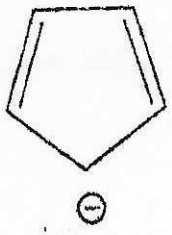
(a) p-Nitrophenol is more acidic than o-Nitrophenol and p-Methoxy phenol.

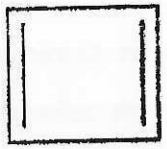
(b) S_N1 reactions are accompanied by racemization as well as inversion of configuration.

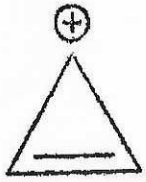
(c) Reactivity of aryl halides towards nucleophilic substitution increases with substitution of nitro groups at ortho and para position.

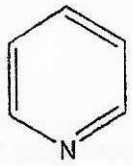
(d) Neopentyl halides are slow towards both S_N1 and S_N2 type of reactions. (5×3=15)

3. (a) Define aromaticity. Classify these compounds as aromatic or antiaromatic. Justify your answers

(i) 

(ii) 

(iii) 

(iv) 

(b) Explain the formation of different products formed when ethyl bromide is treated with NaCN and AgCN.

(c) "CH_3 group of toluene is ortho and para directing whereas CHO in benzaldehyde is meta directing in electrophilic aromatic substitution reactions". Explain. (5×3=15)

4. Illustrate the following:

(a) Internal Nucleophilic Substitution reaction with stereochemical aspects.