2015-16

VCD - 07/10/15 CHEMISTRY P-III S.Y.B.Sc SEM-III MARKS 75 TIME 2.5HRS

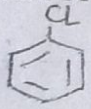
NOTE: i) All the questions are compulsory.
ii) Figures to right indicate full marks.
iii) Use of non –programmable calculator / log table is allowed.

Q.1. Attempt any four [20]

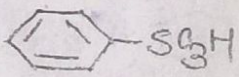
A) Write a note on Aldol addition.
B) How are the following compound prepared using suitable Grignard reagent?
i) 2- Methyl-2- butanol ii) 1- Butanol
C) Explain E1 reaction with mechanism involving carbocation.
D) State and explain Huckel's rule with suitable example.
E) Explain with example
i) Aromaticity ii) Antiaromaticity.
F) Give the following definitions:
i) Carbocation ii) Carbanion iii) Carbon Radical
iv) Carbene v) Homoaromaticity
G) Give the general mechanism for electrophilic aromatic substitution reaction with energy profile diagram
H) Draw structures of the following:
i) Aniline ii) 2- Anthrol iii) Phenol iv) 2- Naphthoic acid v) Benzoic acid

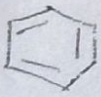
Q.2. Attempt any four: [20]

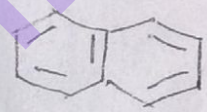
A) Write a short note on preparation of alkyl arene by Friedel Craft reaction and give its mechanism
B) Give any five applications of phenols.
C) Write a note on Fries rearrangement.
D) What is crown ether? Give structure of 18 Crown 6 and any three application of crown ether.
E) Write a note on Williamson's synthesis of ether with its mechanism.
F) Give the IUPAC names of the following.

[i] 

[ii] 

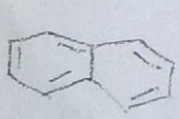
[iii] 

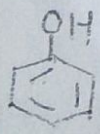
[iv] 

[v] 

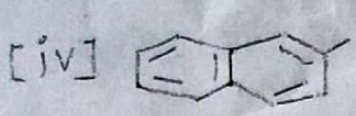
G) What are haloarenes? Give its classification with suitable examples.
H) Predict the product A of the following reactions.

i] $C_6H_6 + Br_2 \xrightarrow[40^\circ C]{FeCl_3} A + HBr$

ii]  $\xrightarrow[80^\circ C]{conc.\ H_2SO_4} A$

iii] 

$+ 3Br_2 \longrightarrow A + 3HBr$

[iv]  + $CH_3OH \xrightleftharpoons[140^\circ C]{conc.\ H_2SO_4}$ A + H_2O

[v] $2\,CH_3-CH_2-OH \xrightarrow[H_2SO_4]{\Delta,\ 140^\circ C}$ A + H_2O

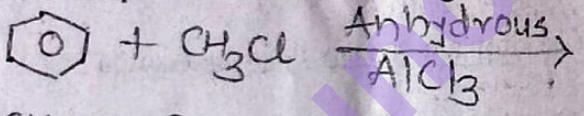
[20]

Q.3. Attempt any four

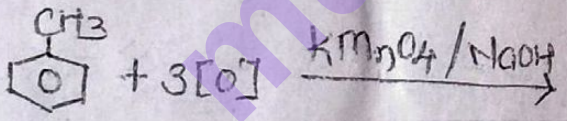
A) What are non renewable and renewable sources of organic chemicals? Give its Merits and demerits.
B) Explain coal liquefactions process with the diagram.
C) What is Raw material or feed stock? What are its requirements?
D) What are flow diagrams? What are their advantages?
E) What is Syn gas? How it is prepared from 1)Coal 2) Methanol 3) Biomass
F) What is global warming? What are its consequences?
G) What is composition of natural gas? Explain conversion of methane to 1) Alkenes 2)Aromatic Hydrocarbon 3) Methanol.
H) Explain coal for refining with diagram & example.

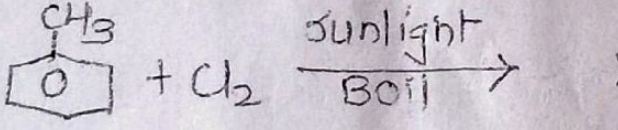
Q.4. Attempt any three [15]

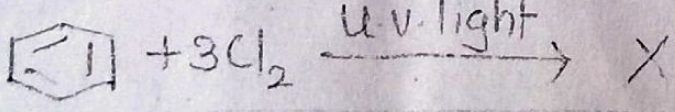
A) Write a note on cine substitution. Give evidence for this type of reaction.
B) Explain SN1 reaction with mechanism.
C) What is global warming? What are its consequences?
D) What is green house effect? What are their sources? Suggest method for reducing Green house gases.
E) Predict the product X of the following :

[i] 

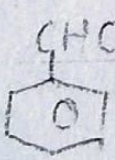
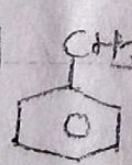
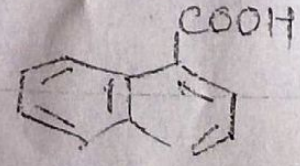
[ii] $CH_3-O-C_2H_5 + HCl \longrightarrow X + C_2H_5-OH$

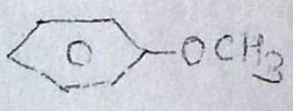
[iii] 

[iv] 

[v] 

F) Give IUPAC names for the following compound.

[i]  [ii]  [iii] 

[iv]  [v]