VCD 300315 **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) Give the general mechanism for electrophilic aromatic substitution reaction with energy profile diagram.

B) Draw structures of the following:

i) Ethoxy benzene ii) 2- Anthrol iii) Thiophenol

iv) 2- Naphthoic acid v) Benzoic acid

C) Write a note on Aldol addition.

D) How are the following compound prepared using suitable Grignard reagent.

i) 2- Methyl-2- butanol

ii) 1- Butanol

E) Explain E1 reaction with mechanism involving carbocation.

F) State and explain Huckel's rule with suitable example.

G)Explain with example

i) Aromaticity

ii) Antiaromaticity.

H) Give the following definitions:

i) Carbocation ii) Carbanion iii) Carbon Radical

iv) Carbene v) Homoaromaticity

Q.2. Attempt any four: **[20]**

A) Write a short note on preparation of alkyl arene by Friedel Craft reaction and give its mechanism.

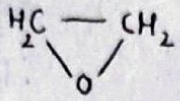
B) Give any five applications of phenols.

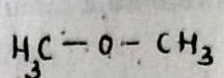
C) Write a note on Fries rearrangement.

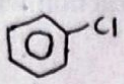
D) What are crown ether? Give structure of 18 Crown 6 and any three application of crown ether.

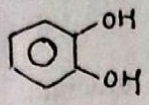
E) Write a note on Williamson's synthesis of ether with its mechanism.

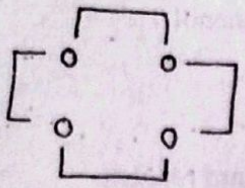
F) Give the IUPAC names of the following.

i) 

ii) 

iii) 

iv) 

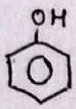
v) 

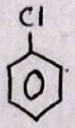
G) What are haloarenes ? Give its classification with suitable examples.

H) Predict the product A of the following reactions.

i)  + HBr ⟶ A

ii)  + H_3C-Br $\xrightarrow{\text{anhy. } AlCl_3}$ A + HBr

iii)  + $3Br_2$ ⟶ A + $3HBr$

iv)  + $CuCN$ (anhydrous) $\xrightarrow[\text{Pressure}]{300^\circ C}$ A + $CuCl$

v)  + H_3C-OH $\xrightarrow{H_2SO_4}$ A + H_2O

Q.3. Attempt any four:

A) Explain coal for refining with diagram & example. [20]

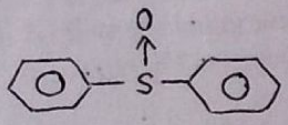
B) Explain coal liquefaction process with diagram.
C) Give the types, characteristics and origin of coal & petroleum .
D) What is composition of natural gas . Explain conversion of methane to
1. Alkene 2. Aromatic Hydrocarbon 3. Methanol .
E) What is Syn gas ? How it is prepared from 1. Coal 2. Methanol 3. Biomass .

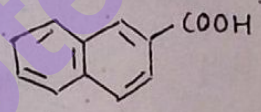
F) What is Biomass ? How it is used to prepare organic chemicals ? What advantages over coal tar or petroleum based chemicals.

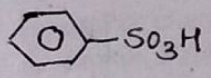
G) What is Biofuel ? What are advantages ? What is Biodiesel ? How it is obtained ?
H) What is chemical plant . Explain use . What are units of chemical plant ?

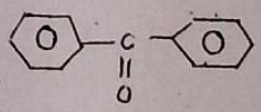
Q.4. Attempt any three: **[15]**

A) Write a note on cine substitution. Give evidence for this type of reaction.
B) Explain SN1 reaction with mechanism.
C) Give IUPAC names for the following compounds:

i) 

ii) 

iii) 

iv) 

v) $CH_3CH_2-SO_2NH_2$

D) What is global warming ? What are its consequences ?

E) What is green house effect ? What are their sources ? Suggest method for reducing green house gases.

F) Predict the product X of the following :

i) $H_2C=CH_2 + 1/2\,O_2 \xrightarrow{Ag} X$