17221

15116

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Answer any TEN of the following: **20**

a) What are carbon compounds? Give examples.

b) Distinguish : Thermal cracking and catalytic cracking.

c) Define electrophile. Give two examples.

d) Write any two characteristics of "rearrangement reaction".

e) What are alkynes? Write the structural formulae of Propyne.

f) Write the structural formulae and electronic formula of Butene.

g) What are alkenes? Write any two rules for their nomenclature.

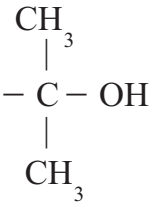
h) State any four industrial uses of alkanes.

i) Write two physical properties of ethanol.

Marks

j) Name and classify the following alcohols:

(i) $C_2H_5 - CH_2 - CH_2 - OH$

(ii) 

k) Define:

(i) Para form

(ii) Paraldehyde

l) Distinguish between aldehydes and ketones.

m) Classify carboxylic acids with examples.

n) Write the reaction of preparation of acetic acid by hydrolysis of cyanides.

o) State any two industrial importance of amino acids.

2. Answer any <u>FOUR</u> of the following: **16**

a) Classify organic compounds on the basis of their structure. Give examples.

b) Describe the mechanism of SN^2 reaction.

c) (i) Explain preparation of alkanes by catalytic hydrogenation of unsaturated hydrocarbons.

(ii) State its one physical property.

d) (i) Explain preparation of acetylene by the action of water on metallic carbide.

(ii) State any two uses of acetylene.

e) Write the chemical reaction for preparation of ethanol from cracked petroleum on technical scale.

f) Explain preparation of formaldehyde from methyl alcohol and acetylene.

Marks

3. Answer any FOUR of the following: **16**

a) State any four characteristics of carbon compounds.

b) Distinguish between carbocation and carbanion.

c) Describe with an example pyrolysis of alkanes.

d) (i) Write any one method of preparation of glycerol.

(ii) State its two uses.

e) (i) How would you prepare acetic and from Grignard reaction?

(ii) Write reduction reaction of acetic acid. Name the product formed.

f) Classify amino acids giving examples.

4. Answer any FOUR of the following: **16**

a) Explain the mechanism of breaking and formation of bonds in any organic reaction.

b) Explain halogenation of alkane with one suitable example.

c) Explain any two chemical properties of alkenes.

d) (i) Define a glycol. Write specific gravity and boiling point of ethylene glycol.

(ii) State commercial uses of ethylene glycol.

e) Outline a method of preparation of urea formaldehyde resin.

f) Describe the method of separating proteins.

Marks

5. Answer any FOUR of the following: **16**

a) Name any four functional groups with one example of compound, from each group.

b) Describe mechanism of SN^1 reaction.

c) Write the common and IUPAC names of the following:

(i) $CH_3 - CH_2 - CH_2 - CH_3$

(ii) $CH_3 - CH = CH - CH_2 - CH_3$

(iii) $CH \equiv CH$

(iv)
$$CH_3 - CH_2 - \underset{\displaystyle C_2H_5}{\underset{|}{CH}} - CH_2 - \overset{\displaystyle CH_2}{\overset{|}{CH}} - CH_3$$

d) Write the reaction of acetaldehyde with:

(i) Fehling's solution,

(ii) Tollen's reagent

e) (i) Explain preparation of oxalic acid by oxidation of glycols.

(ii) State four industrial uses of oxalic acid.

f) Explain the following reactions of acetic acid:

(i) Formation of acid chlorides

(ii) Formation of amides.

Marks

6. Answer any FOUR of the following: **16**

a) Describe Wurtz reaction with suitable example.

b) Define the following:

(i) Alcohol

(ii) Absolute alcohol

(iii) Power alcohol

(iv) Methylated spirit.

c) (i) Explain preparation of acetone from acetic acid.

(ii) State two chemical properties of acetone.

d) (i) Explain effect of heat on oxalic acid.

(ii) Reaction of oxalic acid with ethanol.

e) Explain nature of proteins.

f) What is "Isoelectric point"? Explain its significance.