



17326

15162

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions :**
- (1) *All questions are compulsory.*
 - (2) *Answer **each** next main question on a **new** page.*
 - (3) *Figures to the **right** indicate **full** marks.*
 - (4) ***Use of Non-programmable Electronic Pocket Calculator is permissible.***
 - (5) *Abbreviations **used** convey **usual** meaning,
A.W. {H = 1, C = 12, 'O' = 16}.*

Marks

1. Answer **any five** :

(5×4=20)

- a) a) Define constituents of an atom. 3
- b) Define a molecule. 1
- b) A hydrocarbon has weight composition : 26.6% carbon, 2.2% hydrogen and remaining oxygen. Calculate its empirical formula. If its MW = 90, find its molecular formula.
- c) Compare in general, aliphatic and aromatic compounds.
- d) Explain with an example meaning of :
 - i) Electrophyl
 - ii) Nucleophyl
 - iii) Free radical.
- e) Describe with an example, "Geometric" isomerism.
- f) Name and write structural formula of isomers of butyl alcohol. Name the type of isomerism.
- g) Explain with an example 'optical isomerism'.

2. Answer **any two** :

(2×8=16)

- a) Explain classification of organic compounds, based on structure.
- b) i) Explain Kekule's theory of benzene structure.
ii) Write hydrogenation reaction of benzene, indicating type of catalyst, reaction conditions. Name product of hydrogenation.
- c) Write rules of IUPAC nomenclature of aromatic compounds.

P.T.O.

3. Answer **any two** :

(2×8=16)

- a) i) State general characteristics of organic compounds.
- ii) Name following compounds and write the functional group, present :
- 1) a glycol
- 2) $\text{CH}_3 - \text{C}(\text{O}) - \text{NH}_2$
- 3) $\text{C}_2\text{H}_5\text{SH}$.
- b) i) Explain with reaction, mechanism of sulphonations of benzene.
- ii) How is benzene nitrated ? Explain type of nitrating mixture used and reaction conditions.
Name reaction product(s).
- c) i) Write structural formula and IUPAC name of : 2
- 1) Vinyl chloride
- 2) Acetylene.
- ii) Write constituent of formalin. Write its structural formula and identify the functional group present. 2
- iii) Explain meaning of : 4
- 1) Plane polarised light
- 2) Leavo-rotation.

4. Answer **any two** :

(2×8=16)

- a) i) Explain with an example, 'reversible' reaction. State conditions which favours reaction in forward direction.
- ii) Distinguish : exothermic and endothermic reaction.
- b) Explain nature of Friedel Craft's catalyst and describe with an example Friedel Craft's reaction.
- c) Explain condensation and nitration reactions with suitable examples.



5. Answer any two :

(2×8=16)

a) Complete any four :

(4×2=8)

Structural formula	Usual name	IUPAC name
i) CH_3CHO	_____	_____
ii) $\begin{array}{c} \text{CH}_3\text{CHCH}_2\text{OH} \\ \\ \text{CH}_3 \end{array}$	_____	_____
iii) _____	oxalic acid	_____
iv) _____	_____	methoxy methane
v) MEK	_____	_____
vi) _____	o-toluidine	_____

b) i) Write the steps to calculate the empirical formula of any compound.

4

ii) Classify organic compounds based on their functional group.

4

c) i) Define :

2

1) electrophyl

2) nucleophyl.

ii) Explain with two examples, electrophilic reactions.

6

6. Answer any four :

(4×4=16)

a) i) Define and give an example, of a compound containing :

1) isolated double bounds

2) conjugation.

ii) Define 'dative bond'. Give two examples of compounds containing dative bond.

b) Describe a method to identify :

i) ester group in a compound

OR

ii) 'Chlorine' element in a compound.

**Marks**

- c) Name simplest aromatic hydrocarbon. Write its boiling range. Comment on its water miscibility and toxicity.
 - d) Write the structural formula of ethyl alcohol and methyl alcohol.
 - e) Explain halogenation with suitable example.
 - f) Define the following terms.
 - i) Stereochemistry.
 - ii) Asymmetric carbon atom.
-