

[2½ Hours]

[Total Marks: 75]

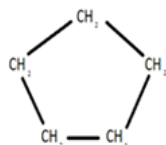
- N.B:**
1. Attempt all questions.
 2. Each question carries 15 marks.

Q. 1 Do as directed: (any fifteen)

15 M

Give IUPAC name of the following compounds:

i

ii $\text{HOOC}(\text{CH}_2)_3\text{COOH}$ iii $\text{CH}_3 - \text{CO} - \text{CH}_3$ iv CH_3COOH v $\text{CH}_3\text{CO}\text{NH}_2$ vi $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$ **Explain the term:**

vii Co-ordinate bond

viii Lattice energy

ix Mole Fraction

x Buffer range

xi Primary standard

xii ppb

xiii Lowry's concept of acid

xiv Basic Buffers

xv Ionic product of water

Give examples of:

xvi Compound exhibiting intramolecular hydrogen bond.

xvii Compound exhibiting ionic bond

Fill in the blanks:xviii The Bond between NH_3 \rightarrow BF_3 is called _____ bond.xix The weak force of attraction present in non-polar molecules is known as-----
-----.xx The bond angle in BF_3 molecule is -----.

Q.2 Attempt the following questions

A Draw structures of the following compounds

8M

- i. Isopentane
- ii. 1,2,3 Propanetriol
- iii. 2-chloro propanamine
- iv. Butane

B State basic rules of IUPAC nomenclature in ketones

7M

OR

C Draw structures of the following compounds

8M

- i. Hexane
- ii. Prop-2-enol
- iii. Ethanol
- iv. 2-pentene

D Discuss IUPAC nomenclature of alkyne. Give suitable examples.

7M

Q.3 Answer the following questions

- A What is Covalent bond? Explain by giving any two examples. 8M
- B Give a brief account of Non-covalent bond. 7M
- OR
- C Draw electron dot structure of any two ionic compounds. State features of ionic bond. 8M
- D Explain the structure of CsCl using ionic bond concept. 7M

Q.4 Attempt the following questions

- A i. Explain in brief, the various ways in which concentration of a solute can be expressed. 4M
- ii. What is the molarity of a solution that contains 10g of glucose dissolved in 250 g of water? (Molecular weight of glucose= 180) 4M
- B Discuss physical properties of water. 7M
- OR
- C i. Discuss hydrolysis of salt of strong acid and strong base 4M
- ii. Calculate pH of 0.25M HCl 4M
- D Show that $\text{pH} + \text{pOH} = 14$ 7M

Q.5 Write short note: (Any three)

- i IUPAC nomenclature of carboxylic acids 15M
- ii Types of hydrogen bonds
- iii Structure of CH_4 molecule
- iv Interaction of water with polar solutes
- v Henderson – Hasselbalch equation for acidic buffer