

2 ½ Hours

Total Marks: 75

Note:

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labelled diagrams wherever necessary.
4. Use of log tables and non-programmable calculator is allowed.
5. For Q 2, Q 3 and Q 4 attempt A and B OR C and D.

Q.1 Do as directed: (Any fifteen)**15****Give IUPAC names for the following compounds:**

1. $\text{CH}_3 - \text{NH}_2$
2. $\text{C}_3\text{H}_7 - \text{COOH}$
3. $\text{CH}_3 - \text{CHO}$
4. CH_4
5. $\text{CH}_3 - \text{CO} - \text{CH}_3$
6. $\text{CH}_3 - \text{O} - \text{CH}_3$
7. CH_3OH

Explain the terms:

8. Atomic radii.
9. Formula unit.
10. Lewis Base.
11. Acidic solutions.
12. Buffer action.
13. Solute.
14. pH.
15. Molality.
16. ppm.
17. Ionic product of water.

Give one example for:

18. Compound exhibiting covalent bond
19. Compound exhibiting ionic bond:
20. Salts derived from weak acids and weak bases

Q 2 A Draw structures of the following compounds:- 08

- i. 3-Pentanol
- ii. Methyl chloride
- iii. Propane dioic acid
- iv. 2-Butanone

Q 2 B State basic rules of IUPAC nomenclature in Amines 07

OR

Q 2 C Draw structures of the following compounds:- 08

- i. 1-Butanol
- ii. Ethyl bromide
- iii. Butanedioic acid
- iv. 2,3 - Hexanedione

Q 2 D Discuss IUPAC nomenclature of Alkenes. Give suitable examples. 07

Q 3 A Explain the term Van der Waals forces? Justify gaseous nature of ethane. 08

Q 3 B Draw electron dot structure of any three ionic compounds and state features of ionic bond. 07

OR

Q 3 C Explain the nature of Coordinate bond using suitable examples. 08

Q 3 D Describe the shapes of BeCl_2 and BF_3 07

- i) What are the requirements for a substance to be used as a primary standard. 04
- ii) 10 grams of sodium hydroxide was dissolved in water to give a solution with a volume of exactly 0.2 dm^3 . What is the molarity of the solution? (Molar mass of $\text{NaOH} = 40$). 04

Q 4 B Explain the structure of a water molecule. 04

OR

- Q 4 C i) Explain hydrolysis of weak acids and strong bases. 07
- ii) Calculate pH of 0.015 M HCl solution. 04

Q 4 D Derive Henderson-Hasselbalch equation for acidic buffer. 07

Q 5 Write short notes on: (Any three) 15

- a. Cyclic hydrocarbons
- b. Dicarboxylic acids
- c. Hydrogen bond
- d. Applications of buffers
- e. Hydrophobic effect