

2 ½ Hours

USBT 101
Basic Chem I
Total Marks: 75

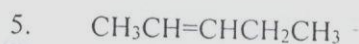
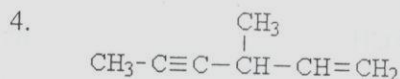
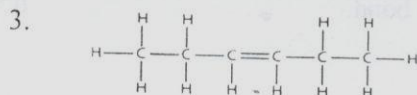
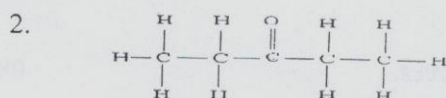
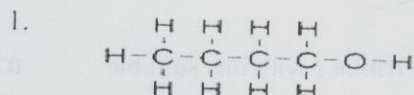
VCD- 22/11/19

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labeled 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 the IUPAC nomenclature for Questions 1-5



6. Define bases
7. Define Salts
8. Define Covalent Bond
9. What is Valency?
10. Any two examples of Noble gases with electronic configuration.
11. What are bond pair electron?
12. Give two examples of compounds with covalent bond.
13. Define Coordinate bond.
14. What is Hydrogen bond?
15. Molecular arrangement of membrane is due to _____.
16. Define Normality.
17. Ppb is _____
18. Number of moles of a solute in 1 kg of solvent is _____
19. Define pH
20. Water is a _____ solvent.

| | | |
|--------|---|----|
| Q. 2 A | Draw the appropriate structures of the following compounds | 08 |
| | i) Hexan-3-ol | |
| | ii) Pentan-2-yne | |
| | iii) 2,3-diimethylbut-1-ene | |
| | iv) 4-bromohex-1-ene | |
| Q. 2 B | Explain the IUPAC nomenclature system for Alkanes with one suitable example | 07 |
| | OR | |
| Q. 2 C | Draw the appropriate structures of the following compounds | 08 |
| | i) 3-ethyl-1-pentene | |
| | ii) Methoxybutane | |
| | iii) Pentanoic acid | |
| | iv) Propanone | |
| Q. 2 D | Explain the IUPAC nomenclature system for Amines with one suitable example | 07 |
| Q. 3 A | Write a detailed note on Van Der Waal Forces. | 08 |
| Q. 3 B | Explain factors governing formation of Ionic bond. | 07 |
| | OR | |
| Q. 3 C | Give detailed account of Hydrogen bonds | 08 |
| Q. 3 D | Draw and explain structures of BeCl_2 , BF_3 and CH_4 . | 07 |
| Q. 4 A | Derive Henderson-Hasselbach Equation | 08 |
| Q. 4 B | 20g of glucose is dissolved in 150g of water. Calculate Molarity, Molality and Mole fraction of glucose solution. [Atomic weight of Carbon – 6, Hydrogen – 1 and Oxygen – 16] | 07 |
| | OR | |
| Q. 4 C | Explain buffer with example. | 08 |
| Q. 4 D | Write a detailed note on Principles of Volumetric Analysis | 07 |
| Q 5 | Write Short notes on any three of the following | 15 |
| a. | oxides | |
| b. | Inorganic acids | |
| c. | Structure of NaCl . | |
| d. | Hydrophobic effect | |
| e. | Ionic Product of water | |