Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment Test – I, August 2025
Semester I

Class: I UG **Time: 2 Hours**
Major: BCBT **Max Marks: 60**

23BCHGE4- Bioorganic Chemistry and Metabolites

Course Outcomes

1. Understand chemical bonding, strong and weak interactions, hydrogen bonding and to apply these principles in various biomolecules and biological reactions
2. Appreciate the physical properties of molecules
3. Apply the concept of reaction intermediates and field effects to organic reactions
4. Comprehend the knowledge of organic reactions with reference to biological systems
5. Apply the concept of stereo chemistry in determining conformations and configurations of molecules

Part-A
Choose the correct Answer **6x1=6 marks**

1. Which of the following has the highest electronegativity **CO1K1**
   a. oxygen b. nitrogen c. fluorine d. chlorine
2. A solution is acid if: **CO1K1**
   a. $[H^+] = [OH^-]$ b. pH = 7
   b. $[H^+] > [OH^-]$ d. $[H^+] < [OH^-]$
3. In catalysis, the phenomenon responsible for increased reaction rate is usually: **CO2K1**
   a. Adsorption b. Diffusion
   c. Absorption d. Desorption
4. An electrode where oxidation is occurs is called: **CO2K2**
   a. Cathode b. anode c. salt bridge d. electrolyte
5. What is the IUPAC name of $(CH_3)_2CH\text{-}CH_2\text{-}CH_3$ **CO3K1**
   a. pentane b. isopentane c. 2-methylbutane d. 3-methylbutane
6. The carbon atom in a carbanion is: **CO3K1**
   a. sp3 hybridized b. sp2 hybridized
   c. sp hybridized d. unhybridized

Part B **3 x 6 = 18 marks**
Answer the following
Answer should not exceed 200 words or one page

7. a. Explain various types of van der Waal's forces. **CO1K1**

(or)

7. b. Write a note on ionic product of water and how we calculate the strength of an acid/base. **CO1K1**
8. a. Explain Langmuir's adsorption isotherm **CO2K1**

(or)

8. b. Define distribution law **CO2K1**
9. a. Briefly explain the phenomena Viscosity and explain one method to determine this. **CO2K1**

(or)

9. b. Identify the IUPAC names of the following compounds **CO3K1**

(i) $C_6H_5\text{-}CH_3$ (ii) $CH_3\text{-}CH_2\text{-}COOH$ (iii) $CH_2{=}CH\text{-}CH{=}CH_2$

Part C **3 x 12= 36 marks**
Answer the following
Answer should not exceed 200 words or one page

10. a. Explain how to calculate pH of a weak acid and explain weak acid strong base titration curve. **CO1K1**

(or)

10. b. (i) Elaborate the theory of acid base indicators **CO1K2**

(ii) Write a note on buffer solutions

11. a. Define the term adsorption and explain its applications **CO2K1**

(or)

11. b. Distinguish between different types of electrodes and their uses **CO2K1**

12. a. Why conductometric titration is superior compared to traditional volumetric analysis. Explain principle and applications **CO2K2**

(or)

12. b. Write a note on reaction intermediates with suitable examples **CO3K2**

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Staff in Charge: Dr. Neethu K S **No. Copies: 50**