Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment Test I – February 2025
Semester-II

Class : I PG **Time : 2 Hours**
Major : Bioinformatics **Max. Marks: 60**

23MBIC09 – Structural Bioinformatics and R Programming

CO1. Explain bonding and their arrangements in a molecules.
CO2. Define the structure of carbohydrate, lipids and its importance
CO3. Realize the structure of nucleic acids, proteins and its importance
CO4. Describe the basic principles of experimental methods for the determination of macromolecules structure anduse of different types of protein prediction tools
CO5. Acquire the knowledge of R programming for data analysis and plotting

Part – A **6 x 1= 6**
Choose the correct answer

1. Which one of them is the weakest bond? CO1K1
   (a) Ionic bond (b) Covalent bond
   (c) Metallic Bond (d) van der Waals force

2. Antibonding molecular orbitals are produced by CO1K4
   (a) constructive interaction of atomic orbitals.
   (b) destructive interaction of atomic orbitals.
   (c) the overlap of the atomic orbitals of two negative ions
   (d) All of the above

3. Which of the following is a polysaccharide? CO2K1
   (a) Sucrose (b)Glucose (c) Cellulose (d) Raffinose
4. Which of the following is not phospholipid? CO2K2
   (a) Sphingomyelin (b) Lecithin (c) Cephalin (d) Cerebroside
5. The isomers which are connected in different way are called as CO1K1
   (a) constitutional isomer (b) Geometrical isomer(c) optical isomer (d) Enantiomers
6. According to Fischer projection, the groups on the vertical line are CO1K4
   (a) towards reader(b) away from reader(c) in plan of paper(d) none of the above

Part B **3 x 6 = 18**
Answer the following
Answers should not exceed 400 words or two pages

7. a) Write a note on hydrogen bonding. CO1K1
   (Or)
   7. b)Give a note on molecular orbital theory. CO1K1
8. a)Comment on lipoprotein. CO2K1
   (Or)
   8. b)What is glycoprotein? Explain. CO2K2

9. a)Write a note on Cahn-Ingold priority rules. CO1K1

(Or)

9. b)Differentiate between sigma and Pi bond. CO1K2

Part C **3 x 12 = 36**

Answer the following not exceeding 800 words or four pages.

10. a) Write a brief note on chemical bonding and explain its types. CO1K2

(Or)

10. b) Explain in detail on Valence bond theory. CO1K2

11. a) Write a note on the classification of carbohydrates. CO2K3

(Or)

11. b) Explain the classification of lipid based on backbone. CO2K3

12. (a) Discuss the data structures in R. CO5K1

(Or)

12. (b) Explain in detail on stereoisomerism. CO1K2

No. of copies- 6 Staff In charge – Dr.M.Rajeswari