QP Code: U25DRIS038

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER (FYUGP) DEGREE EXAMINATIONS, NOVEMBER 2025

(Regular/Improvement/Supplementary)

BCH1MN101 : BIOCHEMISTRY

2024 Admission Onwards

(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks.* ***(Ceiling: 24 Marks)***

1. Calculate the total energy provided by a diet containing 50g carbohydrates, 20g proteins, and 10g fats.
2. Explain the physiological functions of carbohydrates.
3. Evaluate the binding forces which stabilize the DNA structure.
4. What is true solution, colloidal solution and suspension?
5. What are trace elements?
6. Differentiate the between prokaryotes and eukaryotes.
7. Describe the process of dissociation of water and formation of H^+ and OH^- ions.
8. Discuss on the function of Endoplasmic reticulum & Golgi bodies.
9. Compare the biological roles of DNA and RNA.
10. Discuss the difference between Dipole-dipole interactions and Ion-dipole interactions.

Section B

*Answer **all**. Each question carries **6** Marks.* ***(Ceiling: 36 Marks)***

11. Describe the digestion and absorption of proteins.
12. Define weak acid. Write the dissociation equation and expression for the acid dissociation constant (Ka).
13. Define chemical equilibrium. State the key characteristics of chemical equilibrium.
14. Discuss on colloids? Examine mayonnaise as a colloid and mention the emulsifier.

Turn Over

15. Mention the classification of carbohydrates based on their structure.
16. Explain the structure and functions of cell wall using illustrations.
17. Discuss on weak interactions in Biomolecules.
18. Explain the differences between Arrhenius, Bronsted-Lowry, and Lewis concepts of acids and bases with suitable examples.

Section C

Answer ***any one****.* ***(1x10=10marks)***

19. How are different nutrients and gases transported in the living system?
20. Explain the concept of pH and pOH. How are they related? Describe the role of buffers in maintaining pH stability in biological systems.

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