'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 1st Semester Examination, 2023

CC2-PHYSIOLOGY

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any ***five*** questions from the following: 1×5 = 5
   (a) State the second law of thermodynamics.
   (b) What are buffer systems?
   (c) What is sedimentation?
   (d) How does facilitated diffusion different from simple diffusion?
   (e) Define isozymes.
   (f) What is dialysis?
   (g) What do you mean by autoradiography?
   (h) What is liposome?

GROUP-B

Answer any *three* questions from the following 5×3 = 15

2. Describe different types of bonds involved in protein denaturation. 5

3. (a) Define dipole, polarity and dipole movement. 3
   (b) What are polar and apolar molecules? 2

4. Write notes on nuclear proteins and nucleosomes. 5

5. Explain different types of diffusion and add a note on various factors which influences diffusion. 5

6. Write an account on primary, secondary and tertiary structure of DNA. 5

GROUP-C

Answer any *two* questions from the following 10×2 = 20

7. (a) State the limitations of Michaelis-Menten equation. 3
   (b) How substrate concentration affect the rates of enzyme-catalyzed reaction? 3
   (c) Why entropy decreases with increase in temperature? 2
   (d) What are the biological importance of colloids? 2

8. (a) Explain the term nanobiotechnology. 3
   (b) State the biomedical applications of nanoparticles with suitable examples. 4
   (c) Explain the principle of ion-exchange chromatography. 3

9. (a) What do you mean by Km? 2
   (b) Briefly describe the process of competitive and uncompetitive enzyme inhibition. 6
   (c) What are the properties of rate-limiting enzymes? 2

10. (a) Classify enzyme. 4
    (b) Discuss the mechanism of enzyme action. 3
    (c) Mention the role of factors in controlling enzyme action. 3

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