



'समानो मन्त्रः समितिः समानी'

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 2nd Semester Examination, 2022

**CC4-ZOOLOGY**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

1. Answer any **five** questions from the following: 1×5 = 5
  - (a) Viroids are plant pathogens containing double stranded RNA circles without any protein coat. (Write True or False).
  - (b) The net flow of molecules in passive diffusion is always down their concentration gradient. (Write True or False).
  - (c) Constitutive heterochromatin is transcriptionally active. (Write True or False)
  - (d) What is nucleosome?
  - (e) What is a ligand?
  - (f) Where are sarcoplasmic reticulum present?
  - (g) Name two membrane lipids.
  - (h) What is microsome?
  
2. Answer any **three** questions from the following: 5×3 = 15
  - (a) Discuss the role of endoplasmic reticulum in the glycosylation process.
  - (b) Write a short note on the structure of the centriole.
  - (c) What is the significance of the interphase during the cell division?
  - (d) 'Mitochondria is semiautonomous'. Explain.
  - (e) Elucidate the role of MPF in the progression of cell through cell cycle.
  
3. Answer any **two** questions from the following: 10×2 = 20
  - (a) What do you mean by secondary active transport? Describe Na<sup>+</sup>-K<sup>+</sup> pump with appropriate diagrams. Give an example of symport. 2+6+2
  - (b) Write in brief the ultrastructure of centrosome. Elaborate the process of formation of mitotic spindle. 6+4
  - (c) Describe the Complex I through Complex IV of electron transport system. Write a short note on the chemi-osmotic hypothesis. Name two enzymes present in the mitochondrial matrix. 6+3+1
  - (d) How endosomes are formed by endocytotic pathway? Describe the mechanism for targetting the lysosomal proteins from the Golgi apparatus to the endosomes. 5+5

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