UNIVERSITY OF NORTH BENGAL

B.Sc. Honours Part-II Examination, 2021

ZOOLOGY

PAPER-IV (SYLLABUS 2015)

Full Marks: 90

ASSIGNMENT

The figures in the margin indicate full marks.

Answer any *six* questions taking *one* from each of the *four* Groups and rest *two* from any Group

$15 \times 6 = 90$

GROUP-A

(CELL BIOLOGY)

1. Give an account of Fluid-Mosaic model of cell membrane structure with a note on active transport mechanism through cell membrane by Na^+- K^+ pump.

2. Describe electron transport system of the inner mitochondrial membrane along with the function of F_0-F_1 particle.

3. Describe briefly the Prophase-I in meiosis with suitable diagrams with a special note on the importance of meiosis.

GROUP-B

(MOLECULAR BIOLOGY)

4. Enumerate the types and the chemical structure of the nitrogenous bases and describe the Cloverleaf structure of tRNA with special note on the unusual bases found in tRNA.

5. Describe briefly the process of initiation, elongation and termination of prokaryotic translation.

6. Describe different types of enzymes and proteins and their functions required for prokaryotic DNA replication.

GROUP-C

(LABORATORY AND ANALYTICAL TECHNIQUES)

7. Stating the features of a cloning vector, describe briefly the strategy of cloning of a foreign DNA with suitable illustrations.

8. Explain the basis of chromatography and briefly describe the principle, procedure and uses of Thin layer chromatography in biology.

9. Explain the Beer-Lambert's law and describe with suitable diagrams the instrumentation, working principle and uses of colorimeter with a note on the complementary colours and complementary wavelengths.

GROUP-D

(BIOCHEMISTRY)

10. Describe the Pentose phosphate pathway with appropriate illustrations and briefly write on its functions.

11. Describe the effect of substrate concentration on enzymatic reaction and derive the Michaelis-Menten equation.

12. Describe the primary and secondary structure of protein with suitable diagrams and examples.

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