UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 6th Semester Examination, 2023

DSE-P4-Tea Science

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.

**The question paper contains STRESS BIOLOGY and BIOINFORMATICS.
The candidates are required to answer any *one* from *two Papers*.
Candidates should mention it clearly on the Answer Book.**

STRESS BIOLOGY
GROUP-A

1. Answer any *five* from the following: 1×5 = 5

    (a) Give example of a plant where aerenchyma is available.
    (b) What is ROS?
    (c) What do you mean by chlorosis?
    (d) Give example of few micro-nutrients of plants.
    (e) Give example of leguminous crop.
    (f) Give example of some essential elements which acts as catalysis in various enzymatic reactions in plants.
    (g) What is dolomite?
    (h) Which element is associated with porphyrins?

GROUP-B

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

2. What is the difference between biotic stress and abiotic stress?   5

3. Write a short note on the deficiency symptoms of Molybdenum.   5

4. Describe the functions of zinc in plant body.   5

5. Write a brief note on the deficiency symptoms of copper.   5

6. Write a brief note on the functions of phosphorous in the plant body.   5

GROUP-C

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

7. Describe the formation of Schizogenous aerenchyma and Lysigenous aerenchyma.   10

8.   Explain the function and deficiency symptoms of nitrogen.   10

9.   Describe the stress sensing mechanisms in plants.   10

10.   What are the scavenging mechanisms of ROS?   10

OR

BIOINFORMATICS

1.   Answer any *five* from the following: 1×5 = 5

 (a) What is BLAST?

 (b) What is the full form of PIR?

 (c) Define software.

 (d) Name one software used in phylogenetic analysis.

 (e) What is the full form of EMBL?

 (f) What is gene expression database?

 (g) Write the full form of DDBJ.

 (h) What is data retrieval?

2.   Answer any *three* from the following: 5×3 = 15

 (a) What is the full form of NCBI? What is its function? What is the importance of   1+1+3
     NCBI in Bioinformatics?

 (b) What is sequence alignment? Describe any one tool used for sequence alignment.   2+3

 (c) What is phylogeny? What is its importance? Write about molecular phylogeny   1+1+3
     prediction.

 (d) Compare between nucleotide database and protein database.   5

 (e) Write about BLOSUM.   5

3.   Answer any *two* from the following: 10×2 = 20

 (a) What is Bioinformatics? Write about the importance and scope of Bioinformatics.   2+8

 (b) What is database? Write about the tools and databases of NCBI.   2+8

 (c) Write about the application of bioinformatics in drug discovery and quantity   5+5
     structure-activity relationship.

 (d) Write short notes on —   5+5

     (i) Protein information Resource

     (ii) Percent accepted mutation.

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