M. Sc. (Sem. I) Examination

March - 2021

Botany : Paper - 104

(Biostatistics and Bioinformatics)

Faculty Code : 003

Subject Code : 1141004

Time : **2:30 Hours]**　　　　　　　　　　　　　　[Total Marks : **70**

Instruction : Answer any five of the following questions.

1　Explain the followings :　　　　　　　　　　　　　　14
   (a)　What is FASTA format? Give an example.
   (b)　Write application of bioinformatics in medicine.
   (c)　What is Shine-dalgarno sequence?
   (d)　What is Blast?
   (e)　What is accession number?
   (f)　What is non parametric test?
   (g)　Define : quantitative variable, primary data, two-way table, sample.

2　Explain the following terms :　　　　　　　　　　　14
   (a)　What is gap? Explain with an example.
   (b)　What are the matrix use for sequence alignment?
   (c)　What is parametric test?
   (d)　What is chi-square test?
   (e)　Define: parameter, continuous variable, secondary data, manifold table
   (f)　What is Consensus sequence?
   (g)　Name software/ tool use for structure view.

3　Answer the following questions :　　　　　　　　　14
   (a)　What are the biological databases? Explain in detail.
   (b)　Explain the application of Bioinformatics in Biotechnology.

4   Write short notes on the following :   **14**
     (a)   NCBI
     (b)   PDB

5   Explain with suitable examples :   **14**
     (a)   What is alignment? What are the different types of alignments? Write about multiple sequence alignment in detail.
     (b)   What is pairwise alignment? Explain in detail. Give examples of the softwares used. Write the procedure to do it in Bioedit.

6   Write notes on the following questions :   **14**
     (a)   Gene prediction
     (b)   Genomics

7   Answer the following questions :   **14**
     (a)   What are measures of Central tendency? Describe with suitable examples.
     (b)   What is the need of Coefficient of Variation? Discuss briefly with suitable examples.

8   Answer the following questions :   **14**
     (a)   What is the difference between cumulative frequency and relative frequency? Describe briefly Frequency distribution.
     (b)   What is bivariate regression analysis? Describe the steps involved in it.

9   Explain the following in details :   **14**
     (a)   What is t-test? Distinguish between one tailed and two-tailed t-test.
     (b)   What are the conditions under which ANOVA is employed? Describe the steps involved in it?

10   Answer the following questions :   **14**
     (a)   Define the term regression. Distinguish between correlation and regression.
     (b)   Define analysis of variance and discuss its utility.

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