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(21224)

Roll No.

M.Sc. (Bio-Tech.) - I Sem.

NP-3332

M.Sc. (Bio-Tech.)

Examination, Dec.-2024

Statistical Methods and Bioinformatics

in Biology

(H-103)

M.Sc. (Bio-Tech.)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt questions from **all** sections as per instructions. Use of calculator is allowed.

Section - A

(Very Short Answer Questions)

Note : Answer all **five** questions. Each question carries 2 marks. Very short answer is required.

2x5=10

P.T.O.

① Explain Histogram and frequency polygon.

② Explain Mean Deviation.

③ Explain paired t-test.

④ What are the basic principles of experimental design and explain one of them.

⑤ What are the components of Bio-informatics.

Section - B

(Short Answer Questions)

Note : Answer any **two** questions out of the following three questions. Each question carries 5 marks. Short answer is required not exceeding 200 words.

2x5=10

⑥ Define Mean, Median and mode with their simple properties.

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7. Define the following terms:

- (a) Type I and Type II errors.
- (b) Large sample test

8. Explain Database accession and searching.

Section - C

(Detailed Answer Questions)

Note : Answer any **three** questions from this section. Each question carries 10 marks. Answer is required in detail.

$$3 \times 10 = 30$$

9. What is dispersion? What are various measures of dispersion? Explain them.

10. Discuss the scope and applications of Bio-informatics in molecular biology and computers.

11. (a) How will you test the independence of two attributes in 2×2 contingency table.

(b) Explain the meaning of "Test for goodness of fit".

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P.T.O.

12. (a) Explain similarities and differences between BLAST and FASTA tools for sequence alignment.

(b) Layout and analysis of Latin Square Design.

13. Write short notes on any **four** of the following: 2½ each

(a) Cumulative frequency curves

(b) Coefficient of variation

(c) Randomized block design

(d) Role of internet in Bio-informatics

(e) NCBI

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