

Roll No. : .....

Total No. of Questions : 11 ]

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# **BPG-1097**

**M.Sc. (Previous) Examination, 2021**

## **MICROBIOLOGY**

Paper - IV

**(Biostatistics and Computer Applications and Bioinformatics)**

*Time : 1½ Hours ]*

*[ Maximum Marks : 75*

**Section-A**

**(Marks : 2 × 10 = 20)**

**Note :-** Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

**Section-B**

**(Marks : 5 × 5 = 25)**

**Note :-** Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

**Section-C**

**(Marks : 10 × 3 = 30)**

**Note :-** Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

**Section-A**

2 each

1. (i) Define Data.
- (ii) What are Histograms ?
- (iii) Define Variance.

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- (iv) What do you understand by mean deviation ?
- (v) In research why experimental controls are important ?
- (vi) Define Sample Size.
- (vii) Write the names of *two* operating systems.
- (viii) Write the names of *two* application packages for microbiologists.
- (ix) Define NCBI.
- (x) Why SWISS-PROT is important ?

**Section-B**

5 each

2. Write in brief about sampling.

*Or*

Write a short note on Graphic presentations.

3. The marks secured in an exam by 11 students are as follows :

7, 16, 121, 51, 101, 81, 1, 16, 9, 11, 16

Find the mean and mode of this data.

*Or*

The marks in numbers of 10 students are given below :

39, 43, 36, 38, 46, 51, 33, 44, 44, 43

Find the mode. Is there more than 1 mode ?

4. What is Student '*t*' test ?

*Or*

Write a short note on Response-Dose relationship.

5. Write a brief note on use of computer as audio-visual aid.

*Or*

Write a short note on Programming languages.

6. Write a short note on metabolic pathway Engineering.

*Or*

Write briefly about protein databases.

**Section–C**

10 each

7. Write in detail about the significance of 'Statistics' in Microbiology.

8. Explain the following :

(a) Binomial distribution

(b) Poisson distribution

9. Write in detail about the utility of 'F-test' in the analysis of scientific experiments.

10. Explain the following :

(a) LIMS in Microbiology

(b) CAL in Microbiology

11. What is BLAST ? Write the various steps of nBLAST used in sequence alignment.