(i) Printed Pages : 4 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 9 6 8

Exam. Code : 0 0 3 4

B.Sc. (Hons) Biotechnology 2nd Sem.

(2054)

STATISTICS AND COMPUTER FUNDAMENTALS

Paper–BIOT-203-T

Time Allowed : Three Hours] [Maximum Marks : 67

Note :— Attempt **five** questions in all, including Question No. 9 in Section-E, which is compulsory and taking **one** question each from Section-A, B, C and D.

SECTION—A

1. (a) What is Primary Data ? Explain different methods of collecting Primary Data.

   (b) Create a Frequency Distribution Table, and an appropriate Graphical Representation for this data set : (show all work, label the axes)

   82, 91, 75, 64, 88, 87, 93, 84, 53, 70, 84, 76, 87, 89, 58, 75, 72, 80, 94, 73, 69, 78, 84, 60, 61 6,7

2. (a) A student computed the mean of a particular sample to be 40.0. After computing the mean, he discovered that he forgot to include the number 35 in the sample. When this number was included, the sample mean changed to 39.5. What is the sample size when the number 36 is correctly included in the sample ?

(b) Define dispersion. What are the objectives of measuring dispersion ? Find the standard deviation for the following distribution :

Age (in years)	20-25	25-30	30-35	35-40	40-45	45-50
Number of persons	170	110	80	45	40	35

6,7

SECTION—B

3. (a) What is Poisson's Distribution ? Mention two application of Poisson Distribution.

(b) Distinguish between the terms *correlation* and *regression*. For the set of data given below, calculate the correlation coefficient. Is expenditure on advertising justified. Give a reason for your answer :

Advertising Expenditure (in Thousands of Rupees)	Sales (in Lakhs of Rupees)
40	1.5
45	1.7
55	2.0
60	1.9
65	2.2
70	2.1

6,7

4. (a) A pair of dice is thrown. Find the probability of getting a total of either 5 or 11.

(b) Derive the moment generating function of the binomial distribution and use this to obtain its mean and variance. 6,7

SECTION—C

5. (a) Differentiate among batch-oriented, online and real-time computer applications, taking appropriate examples.

(b) What is an algorithm ? What are its features ? Develop an algorithm to find the largest of N numbers. 6,7

6. Compare and contrast :

(a) Supercomputer vs Mainframe Computer vs Personal Computer.

(b) Application Software versus System Software versus Open Source Software. 6,7

SECTION—D

7. (a) What is computer memory ? Discuss the various kinds of memory of a computer and the need of those memories.

(b) What is source data automation ? What are some of the technologies used for source data automation ? What is MICR used for ? 6,7

8. Distinguish between the following :

(a) MICR and OMR

(b) CD-ROM and ROM-BIOS. 6,7

SECTION—E (Compulsory Question)

9. (a) What are the essential characteristics of a good questionnaire ?

(b) What is hypothesis ? Mention the types of hypothesis testing.

(c) What is the purpose of Central Processing Unit (CPU) in a Digital Computer ? What are the components of a CPU ?

(d) What are the features of Solid State Drive (SSD) ?

4+4+4+3