(i) **Printed Pages : 3**

(ii) ~~Questions~~ : 9

Roll No. ....

Sub. Code : | 0 | 9 | 6 | 7 |

Exam. Code : | 0 | 0 | 3 | 4 |

B.Sc. (Hons.) Biotechnology 2nd Semester
1048
STATISTICS & COMPUTER FUNDAMENTALS
Paper–BIOT-Sem-II-III-T

Time Allowed : Three Hours]   [Maximum Marks : 67

Note :— Attempt **five** questions in all, including Q. **9** in Section E, which is compulsory and taking **one** each from Section A, B, C & D.

SECTION—A

1. Define and differentiate the following with examples :—

    (a) Primary data and secondary data.

    (b) Discrete data and continuous data.   7,6

2. (a) Represent the following distribution of age of employees by means of a histogram. Find mode from the graph :

Age (years)	20–25	25–30	30–35	35–40	40–45	45–50	50–55
No. of Employees	30	42	37	30	16	8	2

    (b) The following data relates to the salary of workers of two factories :

	Factory A	Factory B
No. of Workers	80	110
Mean	Rs. 2,320	Rs. 2,160
Standard Deviation	Rs. 120	Rs. 122

    Find the mean and standard deviation of all the workers taken together.   7,6

SECTION—B

3. (a) Derive the moment generating function of the binomial distribution and use this to obtain its mean and variance.

(b) Write a short note on 'Cluster Analysis'. 7,6

4. (a) A manufacturer, who produces soda bottles, finds that 0.1% of bottles are defective. The bottles are packed in boxes containing 500 bottles. A soda manufacture buys 100 boxes from producer's bottles. Using Poisson distribution, find how many boxes will contain (i) No defectives and (ii) At least defectives (Given $e^\wedge - 0.5 = 0.6065$).

(b) From the following data on X and Y, obtain the regression equations :

X	6	2	10	4	8
Y	9	11	5	8	7

7,6

SECTION—C

5. (a) What are the three main functional elements of a Computer ? Briefly describe the purpose of each functional element of the computer. List and explain in brief the major application areas wherein computers are used.

(b) Write a note on 'milestones in hardware and software'.

7,6

6. (a) What are the features of an algorithm ? Develop an algorithm to find the largest of N numbers.

(b) What is the difference between On-Line Processing and real-time Processing ? Explain by taking suitable example.

7,6

SECTION—D

7. (a) Differentiate among RAM, virtual memory and cache memory. How does the presence of cache memory increase the processing speed ?

   (b) What role do input and output devices play in computer functioning ? Give examples for each and explain.   7,6

8. (a) What are the different types of printers ? Why are these called hard copy devices ?

   (b) Give 3 differences between CD-ROMs and Hard Disks. Make sure you cover different aspects (technological differences, track or sector organization, etc.).   7,6

SECTION—E

(Compulsory Question)

9. (a) What do you mean by the word 'Statistics' ?

   (b) What is a Markov Model ?

   (c) An average mark of 50 students is 35. If a grace of 5 marks is given to all the students, then what would be the new average ?

   (d) What are stored-program computers, and why do we use them ?

   (e) What is CD-R ?

   (f) What is a Terabyte ? $6 \times 2.5 = 15$