Exam.Code:0034
Sub. Code: 0968

2072

B.Sc. (Hons.) Biotechnology

Second Semester

BIOT- 203-T: Statistics and Computer Fundamentals

Time allowed: 3 Hours

Max. Marks: 67

***NOTE**: Attempt five questions in all, including Question No. 9 (Section-E) which is compulsory and selecting one question each from Section A-D.*

x-x-x

## SECTION-A

1)

a) Distinguish between Discrete data and Continuous data. What is Classification of Data? Explain the importance of Classification of Data.

b) The following distribution gives the state-wise teacher-student ratio in higher secondary schools of India. Find the mode and mean of this data. Interpret the two measures.

| Number of students per teacher | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 |
|---|---|---|---|---|---|---|---|---|
| Number of states/U.T. | 3 | 8 | 9 | 10 | 3 | 0 | 0 | 2 |

(6, 7)

2)

a) The following table gives production yield per hectare of wheat of 100 farms of a village.

| Production yield (in Kg/Hactare | 50-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 |
|---|---|---|---|---|---|---|
| Number of farms | 2 | 8 | 12 | 24 | 38 | 16 |

Change the distribution to a more than type distribution, and draw its ogive.

b) The mean and variance of seven observations are 8 and 16 respectively. If five of these are 2, 4, 10, 12 and 14, then find the remaining two observations. (6, 7)

## SECTION-B

3)

a) X is a normally distributed variable with mean $\mu = 30$ and standard deviation $\sigma = 4$. Find the probability $P(X < 40)$.

b) There are 5 green 7 red balls. Two balls are selected one by one without replacement. Find the probability that first is green and second is red. (6, 7)

4) Explain the following by taking suitable examples:

a) Regression Analysis

b) Hypothesis Testing (6, 7)

## SECTION-C

5)

a) What is the purpose of Central Processing Unit (CPU) in a Digital Computer? What are the components of a CPU? Explain by means of a block diagram of a computer.

b) Develop an algorithm to find the sum of first 20 odd natural numbers. (6, 7)

6) Compare and contrast:

a) Batch-oriented versus real-time applications

b) Compiler versus interpreter (6, 7)

## SECTION - D

7)

a) What is the importance of having a hierarchy of memory instead of a single memory in the computer architecture? Explain why a cache memory, in addition to RAM (or primary memory), is needed in computer systems.

b) What is the need of secondary storage in computers? Explain the organization of Hard Disk with a neat diagram. (6, 7)

8)

a) Compare and contrast MICR, OMR and OCR as source data automation devices.

b) Name optical storage devices. Compare and contrast data storage in various optical storage devices. (7, 6)

## SECTION-E

9)

a) What is nominal data?

b) What is a bivariate data?

c) What is cluster analysis?

d) What is a moment generating function in statistics?

e) One Peta-Byte equals _____ bits.

f) What is size and resolution of a monitor? (6x2.5=15)

x-x-x