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**BSCBTV 355**

**Credit Based VI Semester B.Sc. Degree Examination, September 2022**  
**(2020-21 and Earlier Batches)**  
**BIOTECHNOLOGY (Paper – VIII)**  
**Biostatistics and Bioinformatics**

Time : 3 Hours

Max. Marks : 80

**PART – A**

1. Answer **any ten** of the following :

**(2×10=20)**

- a) What is infinite set ?
- b) Solve for x in  $\log_2 x = 5$ .
- c) Define storage.
- d) Define arithmetic mean.
- e) Define correlation.
- f) Define mean deviation. Write the formula to calculate it for continuous frequency distribution.
- g) What is output device of a computer ? Give two examples.
- h) Write the importance of ALU.
- i) What is ROM ? Mention any one of its applications.
- j) Define genomics.
- k) Define sequence alignment.
- l) What is binomial theorem ?

**P.T.O.**



## PART – B

Answer **any four** of the following choosing **one full** question from **each** Unit :

## Unit – I

2. a) Simplify the following expression : (4+4+7=15)

$$\log_5(500) \approx 2\log_5(2) + \log_6(216).$$

- b) Find the value of x, if  $\log_{10}(x - 10) = 1$ .

- c) Let  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ ,  $A = \{2, 4, 6, 8, 10\}$ ,  $B = \{4, 6, 7\}$

Find : (1)  $A'$ , (2)  $B'$ , (3)  $A \cup B$ , (4)  $(A \cup B)'$ , (5)  $(A')$ , (6)  $(B - A)'$ , (7)  $(A \cap B)'$ .

OR

3. a) Write a note on Venn diagram. (3+5+7=15)

- b) Write an antiderivative for each of the following functions :

1)  $e^{2x}$

2)  $4e^{3x+1}$ .

- c) Find  $\frac{dy}{dx}$  if,  $xy + y^2 = \tan x + y$ .

## Unit – II

4. a) Calculate mean for following data. (4+4+7=15)

10, 20, 22, 13, 15, 22, 33.

- b) Heights of 20 plants are given below, calculate standard deviation.

9, 3, 7, 4, 12, 9, 4, 10, 9, 6, 9, 4.

- c) The following data are the weights of students in a class. Find the median weights of the students.

<b>Weight (kg)</b>	10	20	30	40	50	60	70
<b>Number of students</b>	4	7	12	15	13	5	4

OR



5. a) A die was rolled and simultaneously a coin was tossed. Find the probability that die shows odd number and coin shows head. **(3+5+7=15)**
- b) Calculate mean for following data.  
15, 50, 35, 44, 52, 64, 56, 76, 77, 67, 65, 64.
- c) Heights of 20 plants are given below, calculate standard deviation.  
9, 2, 5, 4, 12, 7, 8, 11, 9, 3, 7, 4, 12, 5, 4, 10, 9, 6, 9, 4.

**Unit – III**

6. a) Write a note on peripheral devices. **(4+4+7=15)**
- b) Describe computer software.
- c) Discuss different components of computers with their functions.

OR

7. a) Write a note on algorithm computer. **(3+5+7=15)**
- b) What are output devices ? List and explain 4 different types of output devices.
- c) Explain applications of computers in biology.

**Unit – IV**

8. a) Write a note on secondary databases. **(4+4+7=15)**
- b) Explain the role of bioinformatics in studying structure of protein.
- c) Discuss the role of bioinformatics in aqua culture.

OR

9. a) Write a note on database software. **(3+5+7=15)**
- b) Illustrate the relevance of bioinformatics in studying biomolecules.
- c) Discuss the role of bioinformatics in drug discovery.
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