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Reg. No. : .....

Code No. : 20445 E Sub. Code : AEMI 61

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Microbiology

Major Elective — BIOSTATISTICS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Biostatistics is also called as \_\_\_\_\_
- (a) Statistics
  - (b) Bionumerology
  - (c) Biometry
  - (d) Both (a) and (b)

2. Which of the following is a branch of statistics?
- (a) Industry statistics
  - (b) Descriptive statistics
  - (c) Inferential statistics
  - (d) Both (b) and (c)
3. Diagram and graphs are tools of \_\_\_\_\_
- (a) analysis
  - (b) presentation
  - (c) collection of data
  - (d) research
4. \_\_\_\_\_ statistics uses the data to provide descriptions of the population either through numerical calculations or graphs or tables.
- (a) Descriptive
  - (b) Quantitative
  - (c) Inferential
  - (d) Qualitative
5. Calculate median of the following data gives the height of five student in cm, 168, 173, 153, 164 and 158.
- (a) 153
  - (b) 173
  - (c) 168
  - (d) 164

6. Find the mode in the following data set: 11, 12, 13, 14 and 14.

- (a) 11                      (b) 13  
(c) 14                      (d) 12

7. Standard deviation is the square of \_\_\_\_\_

- (a) mode  
(b) variance  
(c) standard error  
(d) regression

8. Chi-square test was developed by \_\_\_\_\_

- (a) W.S. Gosset  
(b) Karl Pearson  
(c) A.R. Fisher  
(d) Pascal

9. Correlation coefficient is a number between \_\_\_\_\_

- (a) -1 and +1  
(b) -1 and 0  
(c) 0 and +1  
(d) +1 and +2

10. The regression lines help to find the \_\_\_\_\_

- (a) average of X and Y  
(b) average of X only  
(c) average of Y only  
(d) the median of X and Y

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Describe the function of statistics.

Or

(b) Briefly explain the problem of statistics.

12. (a) Identify the different types of sampling methods in statistics.

Or

(b) Interpret the basic structural components of tables.

13. (a) Highlight the importance of mean and median.

Or

(b) Calculate the mode from the following data.  
Income (Rs. '000) 0-10 10-20 20-30 30-40 40-50  
No. of persons 10 14 19 17 13

- (a) The mean and standard deviation of 100 items are calculated as 60 and 7 respectively. Two items, 35 and 47 were wrongly copied as 53 and 74. Calculate the correct standard deviation.

Or

- (b) What is Kurtosis? How does it differ from Skewness.
- (a) Illustrate the scatter diagram.

Or

- (b) Describe the Karl Pearson's coefficient of correlation.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

- (a) Categorize the two different methods of statistics.

Or

- (b) Explain the different kinds of biological data in biostatistics.

17. (a) What are the different types of statistical tables?

Or

- (b) Draw a Pie and Bar diagram for the following data and its significance.

Cat	3
Bat	7
Insects	23
Worms	17
Birds	12

18. (a) Calculate the mean height from the following data.

Height (in cms)	No. of students
130—134	5
135—139	15
140—144	28
145—149	24
150—154	17
155—159	10
160—164	1

Or

- (b) Write in detail about the measures of central tendency.

19. (a) Discuss about the standard deviation and standard error.

Or

- (b) Distinguish between Karl Pearson's and Bowley's coefficient of skewness. Compute an appropriate measure of skewness for the following data.

Sales (Rs. Lakhs)	No. of companies
Below 50	12
50—60	30
60—70	65
70—80	78
80—90	80
90—100	55
100—110	45
110—120	25
Above 120	10

20. (a) Explain the method of least square and determine the equation of a straight line. Find the best fits data from the followings.

X	10	12	13	16	17	20	25
Y	10	22	24	27	29	33	37

Or

- (b) Explain the principle and application of one way classification of ANOVA.