

D 12650

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Name.....

Reg. No.....

**FIRST SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2021**

Microbiology

MBG 1C 02—BIostatistics-I

(2021 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type Questions)

*Answer at least **eight** questions.*

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. What is meant by data on ratio scale and interval scale ?
2. What is meant by sample ?
3. What is meant by statistic ?
4. What is random sampling ?
5. Define geometric mean and harmonic mean.
6. Out of eleven births in a hospital, five babies weighted over 2.5 kg and five babies weighted less than 2.5 kg. What is the median weight of the babies ?
7. What are the measures of dispersion ?
8. What is co-efficient of variation ?
9. Give mathematical definition of probability.
10. Define equally likely and mutually exclusive events.
11. Write the probability density function of Binomial distribution.
12. Define Chi-square distribution.

(8 × 3 = 24 marks)

Turn over

Section B (Short Essay/Paragraph Type Questions)

*Answer at least **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. The following figures are ages of patients admitted to a hospital with poliomyelitis. Construct a frequency distribution table :

8, 24, 18, 5, 6, 12, 4, 3, 3, 2, 3, 23, 9, 18, 16, 1, 2, 3, 5, 11,
13, 15, 9, 11, 11, 7, 10, 6, 9, 5, 16, 20, 4, 3, 3, 3, 10, 3, 2, 1,
6, 9, 3, 7, 14, 8, 1, 4, 6, 4, 15, 22, 2, 1, 4, 7, 1, 12, 3, 23,
4, 19, 6, 2, 2, 4, 14, 2, 2, 21, 3, 2, 9, 3, 2, 1, 7, 19.

14. Draw frequency polygon for the following data :

Variable :	0-10	10-20	20-40	40-50	50-60	60-70	70-90	90-100
Frequency :	4	6	14	16	14	8	16	5

15. For following distribution of marks of 70 students in a class, obtain the cumulative frequency distributions :

Marks :	10-20	20-30	30-50	50-60	60-70
No. of students :	4	16	30	18	2

16. Calculate mean, median and mode from the following data of heights in inches of a group of students :

61, 62, 63, 61, 63, 64, 60, 65, 63, 64, 64, 66, 64.

17. Give classical definition of probability. Use this definition to establish $0 \leq P(A) \leq 1$ for any event A.

18. Let A and B be the possible outcome of an experiment and suppose that $P(A) = 0.4$, $P(A \cup B) = 0.7$ and $P(B) = p$. For what choice of p (i) A and B are mutually exclusive ; and (ii) A and B are independent ?

19. Explain the procedure of fitting the Binomial distribution.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)*Answer any one question.**The question carries 11 marks.*

20. (i) For a group of 200 candidates the mean and standard deviation of scores were found to be 40 and 15 respectively. Later on it was discovered that the scores 43 and 35 were misread as 34 and 53 respectively. Find the corrected mean and standard deviation.

- (ii) Compute quartile deviation for the following data :

Marks	:	10	20	30	40	50	80
No.of Students	:	4	7	15	8	7	2

21. (i) Red blood cell deficiency may be determined by examining a specimen of the blood under microscope. Suppose that a small fixed volume contains on the average 20 blood cells for normal person. Using Poisson distribution, obtain the probability that a specimen from a normal person contains less than 5 blood cells.
- (ii) The mean IQ of a large number of students of age 14 was 100 with the standard deviation 16. Assuming that the distribution to be normal, find what percentage of students had IQ between 80 and 120 ?

(1 × 11 = 11 marks)