

D 93941

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Name.....

Reg. No.....

FIRST SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2020

Microbiology

MBG 1C 02—BIostatistics—I

(2019 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 ordinal scale ?
2. What is meant by population ?
3. What is meant by parameter ?
4. What is histogram ?
5. Define median and mode.
6. In a survey of sleep apnea scores among 10 persons, the highest value obtained is 58. But it was wrongly recorded as 85. What is the effect of this error on mean and median ?
7. The mean hemoglobin of a group of pregnant females is 10.6 gm/dL with a variance of 4 gm/dL. What is the co-efficient of variation the group ?
8. If the birth weight of each of the 10 babies born in a hospital in a day are found to be 2.8 kg. What is the standard deviation of this sample ?
9. Give mathematical definition of probability.
10. State addition theorem of probability for two events.
11. Which was the best distribution to study the daily admission of head injury patients in a trauma care center ?
12. Define t - 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. Write short notes on : (i) Frequency distribution, (ii) Histogram ; (iii) Frequency polygon ; and (iv) Frequency curve.
14. The total sale (in '000 rupees) of a particular item in a shop , on 10 consecutive days, is reported by a clerk , 35.00, 29.6, 38.00, 30.00, 40.00, 41.00, 42.00, 45.00, 3.60 and 3.80. Calculate the mean. Later it was found that there was a number 10.00 in the machine and reports of 4th and 8th days were 10 more than the true values and in the last two days he puts the decimal in the wrong place thus 3.60 was really 36.0 and 3.80 was 38.0. Calculate the true mean.
15. For following distribution of marks of 70 students in a class, obtain the mean and median :

Marks	:	10-20	20-30	30-50	50-60	60-70
No. of students	:	4	16	30	18	2
16. The diastolic blood pressure of 9 patients is given by 83, 75, 81, 79, 71, 95, 75, 77 and 84. Find the mean deviation about median.
17. A town has two doctors A and B operating independently. If the probability that doctor A is available is 0.9 and that for B is 0.8. What is the probability that at least one doctor is available when needed ?
18. You need eggs to make omelets for breakfast. You find a dozen eggs in the refrigerator, but do not realize that two of them are rotten. What is the probability that of the four eggs you choose at random : (i) none is rotten ; and (ii) exactly one is rotten ?
19. Explain the procedure of fitting the Poisson distribution.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** question.

The question carries 11 marks.

20. The following are the marks scored by two students A and B in a series of tests :

A	:	55	46	60	48	56
B	:	65	60	72	58	75

Find out whose performance is more consistent.

21. (i) A hospital switch board receives an average of 4 emergency calls in a 10 minutes interval. What is the probability that : (a) there are at the most 2 emergency calls in a 10-minutes interval ? (b) There are exactly 3 emergency calls in a 10 minutes interval ?
- (ii) If the skulls are classified as A, B and C according as the length - breadth index is under 75, between 75 and 80 and over 80. Assuming that the distribution is normal with mean 74.4 and standard deviation 3.2, find the probability that a series skulls are of type B.

(1 × 11 = 11 marks)