THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2012

(CCSS)

Microbiology

MB 3C 11—BIOSTATISTICS I

(As per 2009 Admissions Syllabus)

Maximum : 30 Weightage

Time : Three Hours

Part A

Answer **all** *questions, each question carries weight 'A.*

1. The weights of fishes are recorded in grams. Then measurement is in :

    (a) Interval scale.
    (b) Nominal scale.

    (c) Ratio scale.
    (d) Ordinal scale.

2. Which of the following is not a statistic ?

    (a) Population mean.
    (b) Sample mean.

    (c) Sample variance.
    (d) Sample median.

3. If 25, 100, 10, 40 and 50 are 5 observations then median will be :

    (a) 40.
    (b) 50.

    (c) 25.
    (d) 45.

4. If we collect data from every unit of the population then the study is called :

    (a) Sample survey.
    (b) Pilot survey.

    (c) Census survey.
    (d) Periodical survey.

5. The mean deviation about mean of the observations 20, 35, and 50 is

    (a) 10.
    (b) 0.

    (c) 2.5.
    (d) 5.

6. The variance of the 5 observations 10, 10, 10, 10, 10, will be :

    (a) 10.
    (b) 0.

    (c) Cannot be obtained.
    (d) 1.

7. The set of all possible outcomes of a random experiment is called ——————

8. If $\bar{x} = 10$ and S.D. $= 2$ then coefficient of variation is ——————

Turn over

9. For testing the equality of means of 2 normal populations with common variance we use _____ test.

10. If $X \sim N$ $)$ then the probability that its values will be between $\mu \pm 2a$ is approximately _____ percentage.

11. The probability of a male birth is 0.5. When 3 child births take place, the probability that all the three children are girls is _____

12. A random variable follows a binomial distribution with parameters $n = 10$ and $p = 0.5$. Then the mean of X is _____

(12 x Y4 = 3 weightage)

Part B

Answer **all** *questions.*
Each question carries 1 weight.

13. State the addition theorem of probability in the case of two events.

14. If A and B are independent events with $P (A) = \dfrac{1}{6}$, $P (B) = \dfrac{1}{2}$, find. P (A B

15. State classical definition of probability.

16. State *two* merits and *one* demerit of Median.

17. Distinguish between Accuracy and Precision.

18. State any *four* properties of normal distribution.

19. Define a simple random sample.

20. Define Poisson distribution.

21. What is a statistic ? Give *one* example.

(9 x 1 = 9 weightage)

Part C

Answer any **five** *questions.*
Each question carries weight 2.

22. The following are the ages of patients admitted to a hospital. Calculate the coefficient of variation.
8, 6, 2, 4, 4.

23. Explain the method of drawing a histogram for a frequency table.

24. For the following set of observations obtain the Hormonic Mean

   10, 20, 50, 100, 200.

25. Fit a Posson distribution to the following data :

x	0	1	2	3	4
f	123	59	14	3	1

26. A pair of dice are rolled. Find the probability that the sum of the numbers on the 2 dice is 11.

27. Describe the various mesures of dispersion.

28. The ammonia concentration in females is normally distributed with a mean of 450 and S.D of 100. Find the probability that the ammonia concentration of a female selected at random is between 400 and 460.

(5 x 2 = **10** weightage)

Part D

Answer any two questions.
Each question carries weight 4.

29. The weights of 9 obese women before and after a 12-week low calorie diet treatment are given below. Examine whether the treatment is effective in weight reduction.

Before	117	**111**	98	**104**	**105**	**100**	**82**	89	78
After	83	85	75	83	82	78	62	69	64

30. Calculate the mean, standard deviation and coefficient of variation given the following data :

Age	0-20	20-40	40-60	60-80	80-100
Frequency	5	**10**	12	7	6

31. Decribe the normal distribution. State its important properties. Indicate its importance. Explain how the parameters can be obtained from a sample.

(2 x 4 = 8 weightage)