



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 6th Semester Examination, 2021

DSE4-MICROBIOLOGY

Full Marks: 40

ASSIGNMENT

The figures in the margin indicate full marks.

**The question paper contains two sections DSE-7 and DSE-8.
The candidates are required to answer any *one* from *two* sections and
Candidates should mention it clearly on the Answer Book.**

DSE-7

Answer any *four* of the following

10×4 = 40

1. Give detail about Soil profile and microbial habitat. 10
2. Write about how Rhizobium forms nodules and fixes nitrogen in plants. 10
3. State the advantages and environmental aspects of Bt crops in agriculture. 10
4. Describe the process and advantages of Biogas production with proper schematic diagram. 10
5. Describe in detail the production and control of greenhouse gas nitrous oxide and nitric oxide from soils. 10
6. Explain in detail with examples the direct and indirect mechanism of action of PGPR for plant growth. 10

DSE-8

Answer any *four* of the following questions

10×4 = 40

1. Explain student t-test. How do we evaluate data and analyze its significance using t-test? 4+3+3
2. What is Fibonacci sequence? How Fibonacci sequence works in branching habit of tree problem? 5+5

3. (a) Define kurtosis of a data. Briefly explain the various measures of kurtosis. 6+4
 (b) Find the coefficient of kurtosis of the data given below

Class	0-4	4-8	8-12	12-16	16-20
Frequency	2	3	11	3	1

4. The survey report of a hospital showed that out of 1000 patients 432 were men and 568 were women. The report further revealed that 305 of men and 355 of the women suffered from high blood pressure. Test the hypothesis that the blood pressure was equally frequent in men and women using 2×2 contingency table. 10

5. (a) Explain the statistical terms: 6+4
 (i) Null Hypothesis
 (ii) Degree of freedom
 (iii) Test of significance.

- (b) Two varieties of potato plants (A and B) yield tubers as following. Does the mean number of tubers of the variety A significantly differ from that of variety B?

Tuber yield, kg/plant

Variety A	2.4	2.6	1.9	2.6	1.3	1.8	2.0	2.1	2.4	2.5
Variety B	2.7	2.4	2.6	2.9	3.0	2.2	2.3	3.1	2.4	2.8

6. (a) Explain the different methods to measure skewness. 4+6
 (b) Calculate the mean, mode and median for the following data.

Class interval	130-134	135-139	140-144	145-149	150-154	155-159	160-164
Frequency	5	15	28	14	17	10	1

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