



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 5th Semester Examination, 2020

DSE1-MICROBIOLOGY

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

**The question paper contains two parts DSE-1A and DSE-1B.
The candidates are required to answer any *one* from the two parts
Candidates should mention it clearly on the Answer Book.**

DSE-1A

Answer any *four* of the following questions

10×4 = 40

1. Some materials appear homogenous, but are actually a combination of substances. For example, green plants contain a mixture of different pigments. These materials can be separated by dissolving them in an appropriate liquid and allowing them to move through an absorbent matrix, like paper. This method is used by scientists for separating organic and inorganic compounds so that they can be analyzed and studied. Identify the techniques. Write down its principle and applications. 10
2. Discuss the basic principle of ultracentrifugation. Differentiate between fixed angle and swinging bucket rotor. 6+4
3. Discuss how the study of absorption spectra helps in identification and analysis of biomolecules emphasizing on significance of λ_{\max} and extinction coefficient. 10
4. Discuss the principle of 2D gel electrophoreses. Write a note on isoelectric focusing. 6+4
5. Why agar is not preferred to be used in gel electrophoresis and what are the advantages of using polyacrylamide matrix? Discuss the significance of zymogram analysis. 5+5
6. Write down the principle and applications of TLC. 10

DSE-1B

Answer any *four* of the following questions

10×4 = 40

1. Discuss Koch's postulates with suitable diagram. 10
2. How do phytopathogens develop diseases in plants? 10
3. Write short notes on 10
 - (i) Elicitors
 - (ii) Oxidative burst
 - (iii) SAR
 - (iv) Phytoalexins
 - (v) Necrotrophic pathogen
4. Describe inducible biochemical defenses of plant with suitable diagrams and flowcharts. 10
5. Name a plant diseases leading to huge agricultural losses in India with its etiological agent. Write about the symptoms and controlling measures of this disease. 3+7
6. What is disease triangle? Describe the various virulence factors of pathogens involved in invading plants. 3+7

—x—