



**UNIVERSITY OF NORTH BENGAL**  
B.Sc. Honours 3rd Semester Examination, 2020

**GE3-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 GE3-Paper-I and GE3-Paper-II.  
The candidates are required to answer any *one* from *two* courses.  
Candidates should mention it clearly on the Answer Book.**

**GE3  
PAPER-I**

**Answer any *four* questions from the following**

10×4 = 40

1. Can you explain how Redi's experiment disproved the theory of spontaneous generation? What was the flaw with this experiment and how did that get fixed by Pasteur to establish biogenesis? 5+5
2. Write a note on immunity. Differentiate between primary and secondary immune response. 5+5
3. Write a note on five kingdom classification. What are the advantages and disadvantages of five kingdom classification? 5+5
4. How contrast is created in phase contrast microscope? What are the advantages and disadvantages of phase contrast microscope? 6+4
5. Explain the working principle of fluorescence microscopy with ray diagram. What will happen if the filters in a fluorescence microscope are not properly aligned? 7+3
6. Describe contributions of Martinus W. Beijerinck and Selman A. Waksman in development of the field of soil microbiology. 5+5

**GE3**

**PAPER-II**

**Answer any *four* questions from the following**

10×4 = 40

1. How electron transport chain operates in microorganisms? Give illustrated account. 10
2. Explain Entner-Doudoroff pathway with example. 10
3. Describe the reaction pathway of methanogenesis from CO<sub>2</sub> using hydrogen as electron donor. 10
4. Trace the biochemical pathway leading the formation of ethanol from glucose. 10
5. Write short notes on: 5×2 = 10
  - (a) Hydrogen oxidation
  - (b) Pasteur effect
6. Give a detailed account of biological nitrogen fixation. 10

—x—