



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

CC5-MICROBIOLOGY

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
All symbols are of usual significance.*

Answer any four of the following

10×4 = 40

1. Classify microorganisms on the basis of oxygen requirement. Explain logically why is it important to detoxify the by-products of aerobic respiration. 7+3
2. Derive the mathematical expression of bacterial growth. *Bacillus cereus* divides every 30 minutes. The culture flask was inoculated with 500 bacterial cells initially. How many bacteria are present after 3 hours of incubation at 37°C? Calculate the number of generation after 3 hours. 4+6
3. Describe why ATP, FAD, NAD⁺ and NADP⁺ are important in a cell. 10
4. Do both aerobic respiration and anaerobic respiration use an electron transport chain? Explain. Explain the relationship between chemiosmosis and PMF. 4+6
5. Write a note on pyruvate dehydrogenase complex. 'Citric acid cycle is an amphibolic pathway' — Justify the statement. 5+5
6. Describe the energy metabolisms of *Thiobacillus ferrooxidans* in details. Differentiate between homolactic and heterolactic acid fermentation. 6+4

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