



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2023

CC5-MICROBIOLOGY

MICROBIAL PHYSIOLOGY AND METABOLISM

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

1. Answer any **five** of the following: 1×5 = 5
 - (a) Give an example of psychrophile.
 - (b) What is active transport?
 - (c) State the relation between generation time and specific growth rate.
 - (d) What is the difference between batch culture and continuous culture?
 - (e) What are the sources of electron and energy in chemolithotrophs?
 - (f) What are extremophiles?
 - (g) Define Pasteur effect.
 - (h) What is the alternative pathway for glycolysis?

2. Answer any **three** of the following: 5×3 = 15
 - (a) Schematically represent Entner-Doudoroff pathway. 5
 - (b) Describe the adaptative measures adopted by psychrophiles. 5
 - (c) With a well labelled diagram, describe group translocation. 5
 - (d) Write the effect of pH on microbial growth. 5
 - (e) Write a note on Photolithoautotrophy. 5

3. Answer any **two** of the following: 10×2 = 20
 - (a) Define oxidative phosphorylation with an example. Schematically represent Kreb's cycle. 3+7
 - (b) With a well labelled diagram explain chemostat. Mention the differences between chemostat and turbidostat. 5+5
 - (c) Explain the adaptive measures shown by thermophiles and halophiles. 5+5
 - (d) Write down the concept of symport, uniport and antiport. Explain why anaerobes do not grow in presence of oxygen. Write a note on Assimilatory Nitrate Reduction (ANR). 3+3+4

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