

University of Ruhuna- Faculty of Technology
Bachelor of Biosystems Technology Honours
Level 2 (Semester II) Examination, November / December 2022
Academic year 2020 / 2021

Course Unit: BST 1262
Basic Microbiology

Duration: 1 hour and 30 minutes

Student No:

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Please **read** and **follow** the instruction carefully before answering the questions.

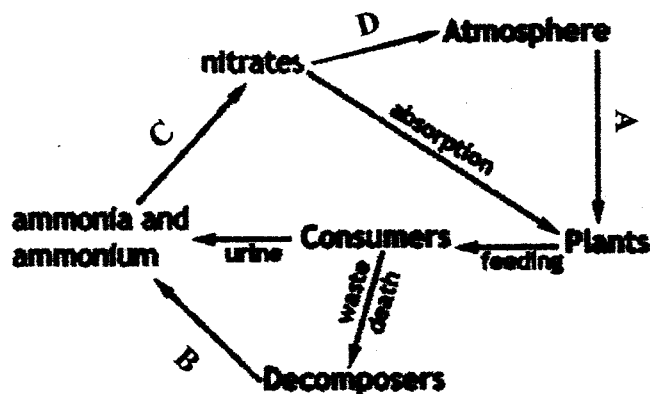
- Answer **All Two (02)** questions in **PART I** in the given space.
- Answer **Only Two (02)** question in **PART II**.
- Use the separate book for answering the question in PART II.
- Each question should be started with new page.
- Calculators and mobile phones are not allowed

Part I

Answer all questions

Question 1 (20 Marks)

The following questions are based on the Nitrogen cycle given below.



- I. What are the main processes of the above cycle (8 Marks) ?
 - A.
 - B.
 - C.
 - D.

- II. Write the names of the bacteria that involved in the following activities (8 Marks).
 - a. $N_2 \rightarrow NH_3$
 - b. $NH_4^+ \rightarrow NO_2^-$
 - c. $NO_2^- \rightarrow NO_3^-$
 - d. $NO_3^- \rightarrow N_2$

- III. What are adaptations that bacteria show in the above A and B processes (2 Marks).
 - A.
 - B.

IV. Mention an anthropogenic activity that can interrupt the Nitrogen cycle (2 Marks).

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Question 2 (20 Marks)

“Control of microbial growth” means to inhibit or prevent growth of microorganisms.

I. Describe the difference between bactericidal and bacteriostatic (2 Marks).

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II. Write four (4) examples of physical methods used in controlling microbial growth (8 Marks).

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III. Briefly describe the application of pasteurization as a non-sterilization method to control microbial growth (2 Marks).

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IV. What are the chemical methods used to control microbial growth (8 marks)?

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PART II

Answer two (02) questions only

Question 1 (30 Marks)

Microorganisms involve in food spoilage, and it causes severe health and economic complications.

- a. What do you mean by food spoilage (5 Marks)?
- b. Mention two extrinsic and three intrinsic factors that influence food spoilage (10 Marks).
- c. Discuss the preventive measures can be taken to minimize the food spoilage (15 Marks).

Question 2 (30 Marks)

Microorganisms can cause disease in humans on some occasions.

- a. Define the disease (5 Marks).
- b. Write direct and indirect transmission modes of an infectious disease (10 Marks).
- c. "Antibiotic resistance becomes a serious threat to the world". Discuss (15 Marks).

Question 3 (30 Marks)

Write short notes on followings

- a. Biofertilizer production (10 Marks)
- b. Bio pesticide production (10 Marks)
- c. Biogas production (10 Marks)

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