

**The Open University of Sri Lanka**  
**Faculty of Natural Sciences**  
**B.Sc Degree Programme**



<b>Department</b>	<b>: Botany</b>
<b>Level</b>	<b>: Level 05</b>
<b>Name of the Examination</b>	<b>: Final Examination</b>
<b>Course Title and - Code</b>	<b>: Environmental and Applied Microbiology – BYU5300/BOU3100/BYE5300/BOE5100</b>
<b>Academic Year</b>	<b>: 2019/2020</b>
<b>Date</b>	<b>: 13.11.2020</b>
<b>Time</b>	<b>: 9.30am – 11.30am</b>

**General Instructions**

1. Read all instructions carefully before answering the questions.
  2. This question paper consists of **six (06)** questions in **one (01)** page.
  3. Answer any **four (04)** questions only. All questions carry equal marks.
  4. Answer for each question should commence from a new page.
  5. Draw fully labelled diagrams where necessary.
  6. Involvement in any activity that is considered as an exam offense will lead to punishment
  7. Use blue or black ink to answer the questions.
  8. Clearly state your index number in your answer script
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THE OPEN UNIVERSITY OF SRI LANKA  
 B.Sc. DEGREE PROGRAMME- LEVEL 5  
 FINAL EXAMINATION – 2019/2020  
 BOTANY



BOU3100/BYU 5300/BYE5300/BOE5100- ENVIRONMENTAL AND APPLIED MICROBIOLOGY

DURATION – TWO (02) HOURS

Date – 13<sup>th</sup> November 2020

Time – 09.30am – 11.30am

Answer **any four (04)** questions.

1. a. List the factors that can influence the occurrence and abundance of microorganisms in the soil.  
 b. Explain the mutualistic associations that occur in soil between plant roots and soil microorganisms giving suitable examples.
2. a. Briefly explain the sources of water pollution.  
 b. i. What are coliform bacteria?  
 ii. “*Escherichia coli* is used as an indicator organism in determining the sanitary quality of drinking water.” Justify the statement.  
 c. Explain the role of microorganisms in secondary treatment process in a wastewater treatment plant.
3. Write short notes on **any three (03)** of the following.  
 a. Single cell protein  
 b. Normal flora of human body  
 c. Primary immune response  
 d. Vectors
4. a. List the major steps in manufacturing of beer.  
 b. State how the top fermentation process differs from the bottom fermentation process during production of beer.  
 c. Give a concise account of the production process and the microorganisms associated with each of the following.  
 i. Production of vinegar  
 ii. Production of yoghurt
5. a. Write an account on living reservoirs of human infectious diseases.  
 b. Write concisely on common routes of transmission of infectious diseases from reservoirs to susceptible human beings.
6. a. List the intrinsic and extrinsic factors that may affect the growth and survival of microorganisms in food.  
 b. Write a short account on methods used in food preservation by high temperature or heat. Your answer should include the types of food that can be preserved and the principle of each preservation method.