

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME – LEVEL 5

FINAL EXAMINATION - 2015/2016

BOTANY

BOU 3100/BTU 3101/BTE 5101- ENVIRONMENTAL AND APPLIED MICROBIOLOGY

DURATION – TWO (02) HOURS



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Date – 03<sup>rd</sup> January 2017

Time – 9.30 – 11.30 am

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ANSWER ANY FOUR (04) QUESTIONS.

1. (a). Describe the effects of soil nutrients and soil moisture on abundance and distribution of microorganisms in soil.  
(b). 'Soil microorganisms improve soil fertility'. With reference to suitable examples, discuss this statement.
2. (a). What are coliform bacteria?  
(b). Explain why *Escherichia coli* is used for measuring the sanitary quality of potable water.  
(c). Treatment process of municipal water supplies has various steps. Briefly describe each of the following steps and explain their roles in making water safe to drink.
  - (i). Coagulation and flocculation
  - (ii). Filtration
  - (iii). Disinfection
3. Write short notes on any three (03) of the following.
  - (a). Normal flora of human body
  - (b). Manufacturing of beer
  - (c). Endotrophic mycorrhiza
  - (d). Spoilage of canned food

4. (a). What are the major components of the immune system?  
(b). Compare the human primary immune response with that of secondary immune response for the same antigen.  
(c). Indicate the type of immunity that could develop
  - (i). after having measles
  - (ii). after getting oral polio vaccine
  - (iii). after having rabies immunoglobulins
5. (a). On the basis of food spoilage, foods can be categorized into three (03) groups. List them giving suitable examples.  
(b). Write concisely on microbial spoilage of meat. Include in your answer, the type of spoilage, the microorganisms involved and the biochemical changes that take place in meat.  
(c). Briefly explain the antimicrobial action of food preservation by increased osmotic pressure.
6. Give a concise account on the use of microorganisms in each of the following.
  - (a). Production of biofertilizers
  - (b). Curdling and ripening of cheese
  - (c). Pollution control
  - (d). Production of bioinsecticides