



**THE OPEN UNIVERSITY OF SRI LANKA**

**B.Sc. DEGREE PROGRAMME – LEVEL 5**

**FINAL EXAMINATION - 2012/2013**

**BOTANY**

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

**MICROBIOLOGY**

**DURATION – TWO (02) HOURS**

---

**Date – 26<sup>th</sup> November 2013**

**Time – 9.30 a.m.- 11.30 a.m.**

---

**ANSWER ANY FOUR (04) QUESTIONS. USE FULLY LABELLED DIAGRAMS WHERE NECESSARY.**

01. (a). What are biogeochemical cycles?  
(b). Illustrate schematically the steps in the Nitrogen and Carbon cycles in nature.  
(c). Citing examples, discuss in detail, the effects of agricultural practices on the Nitrogen cycle.
02. (a). Giving examples, briefly explain the microbial community types seen in an aquatic environment.  
(b). Give a concise account on the following factors that influence the growth and distribution of microorganisms in water.  
(i). Nutrients  
(ii). Dissolved gases  
(iii). Temperature  
(iv). Light
03. (a). List the advantages of using single cell proteins (SCPs) as a food for humans.  
(b). Give a brief account on the industrial process and the microorganisms involved in each of the following.  
(i). Manufacture of wine  
(ii). Production of cheese

04. Write concisely on microbial spoilage of milk and milk products. Include in your answer, the microorganisms involved and the biochemical changes that take place.
05. Write an account on reservoirs of human infectious diseases and methods of transmission of diseases from reservoirs to susceptible humans.
06. Write short notes on the following.
  - (a). Activated sludge process in sewage treatment
  - (b). Monoclonal antibodies
  - (c). Microbial decomposition of cellulose