



**THE OPEN UNIVERSITY OF SRI LANKA**  
**B.Sc. DEGREE PROGRAMME**  
**FINAL EXAMINATION – 2010/2011**  
**BOTANY**  
**BTU 3101/BTE 5101 – ENVIRONMENTAL AND APPLIED MICROBIOLOGY**

**DURATION – TWO AND A HALF HOURS (2 ½ HRS)**

**DATE – 17<sup>th</sup> June 2011**

**TIME – 9.30 am – 12.00 pm**

**ANSWER ANY FOUR (04) QUESTIONS.**

01. (a) Name the sources from which potable water can be made available in Sri Lanka.
- (b) Explain briefly the microbiological indicators of water quality.
- (c) Name and explain briefly the steps involved in purification of municipal water supplies.
02. (a) Give a brief account of intrinsic factors and their effects on growth and survival of microorganisms in food.
- (b) List the various types of spoilage that can occur in milk. For each type of spoilage you mention,
- (i) name the causative microorganism/s
- (ii) give biochemical/physiological changes that occur in each type of spoilage.
03. (a) Describe briefly the term 'normal flora' of human body.
- (b) With the help of a suitable diagram, describe processing of B and T lymphocytes from stem cells in bone marrow.
- (c) Differentiate between the following.
- (i) Endotoxins and exotoxins
- (ii) Primary immune response and secondary immune response
04. (a) Explain briefly how soil microorganisms contribute to soil fertility.
- (b) With the help of suitable diagrams and examples, explain how soil microorganisms resist unfavourable environmental conditions.

05. (a) List the major steps in the production of genetically engineered bacterium.
- (b) Giving suitable examples, write a short account on features that make certain microorganisms as vectors in recombinant DNA technology.
- (c) With the help of examples, explain briefly the applications of recombinant DNA technology in agriculture.
06. Write short notes on any three (03) of the following.
- (a) Rhizobium-legume symbiosis
- (b) Living reservoirs of infection
- (c) Biological control of pests
- (d) Use of ultraviolet radiation and chemical agents in controlling microorganisms in air