

**THE OPEN UNIVERSITY OF SRI LANKA**

**B.Sc. DEGREE PROGRAMME – LEVEL 5**

**FINAL EXAMINATION - 2016/2017**

**BOTANY**

**BOU 3100- ENVIRONMENTAL AND APPLIED MICROBIOLOGY**

**DURATION – TWO (02) HOURS**



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**Date – 28<sup>th</sup> December 2017**

**Time – 9.30 am – 11.30 am**

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

1. (a). Explain the following terms.
  - (i). Soil horizons
  - (ii). Soil profile
- (b). Citing suitable examples, give a concise account on various types of beneficial interactions that occur in soil between
  - (i). different soil microorganisms
  - (ii). soil microorganisms and plants
2. (a). Give a brief account on major sources of contamination of raw milk.
- (b). List the various types of spoilage that can occur in milk. For each type of spoilage you mention,
  - (i). name the causative organism/s
  - (ii). give biochemical/physiological changes that can occur in each type of spoilage.
3. (a). Differentiate between the following with respect to human pathogens by giving an example for each of the following.
  - (i). Primary pathogens and opportunistic pathogens
  - (ii). Local infection and systemic infection
- (b). Give a brief account on mechanisms of innate (natural) immunity of man against pathogenic microorganisms.

4. (a). Explain the types and the composition of wastewater of a community.  
(b). The conventional wastewater treatment falls into three broad processes. Explain these three processes indicating the main objectives of each of these process.
  
5. Write short notes on the following.
  - (a). Living reservoirs of infection
  - (b). Bioremediation
  - (c). Restriction endonucleases
  
6. Write briefly on the use of microorganisms in the production of
  - (a). single cell proteins
  - (b). vinegar
  - (c). enzymes
  - (d). biofertilizers