

**University of Ruhuna - Faculty of Technology**  
**Bachelor of Biosystems Technology Honours Degree**  
**Level 4 (Semester I) Examination, June 2023**  
**Academic year 2021/2022**

**Course Unit: BSTE 4112 Soil Conservation and Land Management    Duration: 1 ½ hours**  
**(Theory)**

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**INSTRUCTIONS**

Answer all questions.

Only non-programmable calculators are permitted.

Mobile phones are NOT permitted.  
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1. A. i) What is meant by soil erosion? (10 marks)
- ii) Name FOUR soil characteristics that affect soil erosion. (10 marks)
- iii) Explain briefly the following types of water erosion.
- a) Splash erosion (10 marks)
- b) Sheet erosion (10 marks)
- c) Rill erosion (10 marks)
- B. i) Name two main types of wind erosion. (05 marks)
- ii) Name the THREE ways the soil particles move with the wind. (05 marks)
- iii) Describe briefly the THREE ways the soil particles move with the wind. (15 marks)
- C. i) State the Universal Soil Loss Equation. Name all the basic factors used in the equation. (10 marks)
- ii) In a **bare flat land**, the rainfall factor is 115. The soil erodibility factor is 0.2. The slope length and gradient (L×S) factor is 0.05. Calculate the average annual soil loss (give units). State all the assumptions. (15 marks)
- 2) A. i) Define “**sustainable land management**”. (10 Marks)
- ii) List down **five (5)** land management techniques. (20 Marks)
- B. i) State **five (5)** best management practices, which you can follow in **landscaping**. (20 Marks)
- Marks)
- ii) State **five (5)** methods of controlling soil-borne diseases. (20 Marks)
- C. Briefly explain how you manage **sandy** and **clay** soils for **lawn and turf care**.

(30 Marks)

- 3) A. i) Explain briefly the following processes. (30 Marks)
- a) Surface runoff (10 marks)
  - b) Nutrient pollution (10 marks)
  - c) Sedimentation (10 marks)
- ii) Name FIVE methods of controlling shoreline erosion. (05 marks)
- iii) Explain briefly the methods you have mentioned in Part A. ii). (15 marks)
- B. i) List major types of irrigation systems. (10 Marks)
- ii) What are the objectives of irrigation? (20 Marks)
- iii) Differentiate between **sub-irrigation** and **sub-surface irrigation**. (20 Marks)

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