

# **NATIONAL UNIVERSITY OF LESOTHO**

**FACULTY OF AGRICULTURE**

**B.Sc. AGRICULTURE EXAMINATION**

**CPS 2502 – INTRODUCTION TO IRRIGATION AND DRAINAGE**

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**JANUARY 2021**

**MARKS: 100**

**DUE: Saturday 23/01/2021  
(on or before 18.00)**

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**INSTRUCTIONS:**      **Answer all questions.**

**Number your answers correctly.**

### QUESTION 1

- a). Define irrigation.
- b). What are the advantages and disadvantages of irrigation.
- c). Give 3 types of irrigation used worldwide.
- d). Which two (2) types of irrigation are most commonly used in Lesotho?

(20)

### QUESTION 2

A farmer sent you the following message:

*"I wish to start a sprinkler irrigation project, please advise me on the following:*

- *Which crops are suitable for sprinkler irrigation and why?*
- *What slopes are suitable for sprinkler irrigation and why?*
- *What soils are most suitable for sprinkler irrigation and why?*
- *What water can be used for sprinkler irrigation?*

Please advise the farmer accordingly.

(20)

### QUESTION 3

Describe the concepts of Available Water (AW) and Readily Available Water (RAW) and demonstrate how these affect the yields of crops.

(10)

### QUESTION 4

Name the area where you come from (District and village) and mention the existing sources of irrigation water available there, describing in full what each source is. Further, describe five (5) possible water quality issues that may affect the water that is in your area, and explain how they can be treated.

(20)

### QUESTION 5

Given the following daily pan evaporation data, calculate reference crop evaporation using 0.7 as Pan Coefficient:

<b>Date</b>	<b>Ep (mm)</b>	<b>ETo (mm)</b>
Aug 1	12.1	
Aug 2	11.1	
Aug 3	8.2	
Aug 4	6.6	
Aug 5	9.6	
Aug 6	9.6	
Aug 7	8.0	
Aug 8	6.5	
Aug 9	8.5	
Aug 10	5.7	

**(20)**

### QUESTION 6

Using a diagram explain what a hydrologic cycle is and provide all the components of the cycle.

**(10)**