



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

**PROGRAMME: BSC AGRIC IV (L&WM), BSC AGRIC ED. IV &
BSC AGRIC V (APH)**

COURSE CODE: LUM 406

TITLE OF PAPER: RURAL WATER SUPPLY

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO
OTHER QUESTIONS.**

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GRANTED BY THE CHIEF INVIGILATOR**

SECTION I: COMPULSORY QUESTION**QUESTION 1**

- (a) Discuss the impact of agricultural activities on water quality in Swaziland. (20 Marks)
- (b) Given the following conditions:
- | | |
|-------------------------------|--------|
| Annual precipitation | 200 mm |
| Coefficient of runoff | 40% |
| Effective precipitation | 90 |
| Crop water use | 350 |
| Available area to shed runoff | 25 ha |

Determine the size of in-catchment area that can be cultivated and the total area of the catchment required. (20) marks)

SECTION II: ANSWER TWO QUESTIONS FROM THIS SECTION**QUESTION 2**

With the aid of clearly labelled diagrams, briefly but concisely, describe what is meant by the following terms:

- a) influent seepage; (6 marks)
- b) piezometric surface; (6 marks)
- c) an aquiclude (6 marks)
- d) perched groundwater; (6 marks)
- e) effective rainfall in water supply. (6 marks)

QUESTION 3

Discuss some of the important factors that contribute to the failure of rural water supply projects in Swaziland. (30 marks)

QUESTION 4

Discuss how you determine the water needs of a rural community in Swaziland. (30 marks)