



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

**PROGRAMMES : BSC AGRICULTURAL AND BIOSYSTEMS
ENGINEERING YEAR II**

COURSE CODE : ABE 201

TITLE OF PAPER: AGRO-CLIMATOLOGY

TIME ALLOWED : TWO (2) HOURS

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

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GRANTED BY THE CHIEF INVIGILATOR.**

AGRO – CLIMATOLOGY
FINAL EXAMINATION

Question 1: Compulsory

- (a) The figure below shows that the maximum air temperature does not coincide with the maximum solar radiation received by the earth. Give two reasons why this is so.

[10 marks]

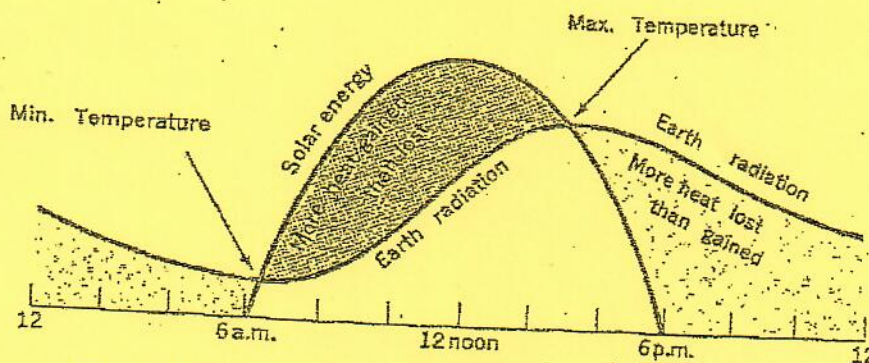


Figure . Daily temperature rhythm as influenced by solar and earth radiation

- (b) Briefly describe the difference between Potential Evapotranspiration and Actual Evapotranspiration as used in Agro – Climatology.

[10 marks]

- (c) (i) Why is rainfall important in Agriculture
- (ii) Describe three factors that influence effective rainfall

[5 marks]

[15 marks]

Question 2

- (a) Discuss and describe four probable causes of climate change.
- (b) Describe one method of determining evapotranspiration.

[20 marks]

[10 marks]

Question 3

- (a) Give & discuss three weather factors and three plant factors that influence evapotranspiration.
- (b) Describe in full what is meant by effective rainfall and how it affects irrigation scheduling.

[15 marks]

[15 marks]

Question 4

- (a) Briefly define the term “Smart Agriculture” as applied in the context of climate change, and explain how it helps to sustain agricultural production.

[15 marks]

- (b) A two hectare field grown with maize crop is irrigated by sprinklers. the sprinkler system applies 4.00 mm / hr water, and it irrigates 6 hours to fulfill the crop water requirements.

Calculate the amount of water applied on the field assuming the field is irrigated at once.

[15 marks]