



# UNIVERSITY OF EMBU

2019/ 2020 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN  
LAND AND WATER MANAGEMENT

ALM 602: GLOBAL WARMING AND AGRICULTURE

**DATE: OCTOBER 28, 2020**

**TIME: 2.00 – 5.00PM**

**INSTRUCTIONS:**

**Answer ANY FOUR Questions.**

**QUESTION ONE (25 MARKS)**

- a) i) Define atmospheric circulation. (2 marks)  
ii) Discuss briefly the role of atmospheric circulation in regulation of climate on earth. (3 marks)
- b) Outline the **five** roles of the atmospheric system. (10 marks)
- c) Explain **two** main mechanisms of reconstructing past climatic conditions of any given place. (6 marks)
- d) Discuss **five** key impacts of climate change on agriculture. (5 marks)
- e) Discuss **four** main ways in which agriculture contributes to greenhouse gas increases on the planet. (4 marks)

**QUESTION TWO (25 MARKS)**

One of the biggest problems facing agriculture in Africa is the spectre of climate change.

Discuss this statement, drawing on the example of maize cropping system.

**QUESTION THREE (25 MARKS)**

- a) Discuss the impact of the El Nino Southern Oscillation phenomenon on smallholder farmers in East Africa. (15 marks)
- b) Explain **two** mechanisms employed by oceanic circulation in distribution of heat globally. (10 marks)

**QUESTION FOUR (25 MARKS)**

- a) Describe the carbon capture and sequestration process. (5 marks)
- b) Discuss the projected impact of climate change on hydrological cycle. (20 marks)

**QUESTION FIVE (25 MARKS)**

Describe **four** broad strategies that have been identified in the Adaptation Policy Framework for use in addressing impacts of climate change on agriculture.

**-END-**

