



# MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

AGR 483: CLIMATE CHANGE AND ADAPTATION IN AGRICULTURE

DATE: 21/10/2020

TIME:2.00-4.00 PM

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## INSTRUCTIONS:

Answer question ONE and any other TWO questions

### QUESTION ONE (30 MARKS)

- a) Differentiate between the two concepts:
  - i. Climate change and climate variability (4 marks)
  - ii. Adaptation and mitigation to climate change impacts. (4 marks)
- b) Describe the two systems that determine and control weather on earth. (12 marks)
- c) Discuss the impacts of climate change in agriculture in Kenya. (10 marks)

### QUESTION TWO (20 MARKS)

Discuss various adaptation strategies that are employed to deal with climate-related disasters in Arid and Semi-Arid Lands in Kenya

### QUESTION THREE (20 MARKS)

Citing examples, critically analyse the challenges countries would face regarding implementation of climate change adaptation strategies in transboundary water basins.

### QUESTION FOUR (20 MARKS)

Using local examples, discuss the individual elements of vulnerability to climate change in agro-systems.

### QUESTION FIVE (20 MARKS)

Discuss the **cap-and-trade scheme** as an example of market-based instruments of financing adaptation and mitigation measures.