



KIBABII UNIVERSITY

UNIVERSITY EXAMINATION

ACADEMIC YEAR 2021 / 2022

FOURTH YEAR FIRST SEMESTER

SPECIAL/SUPPLEMENTARY EXAMINATIONS

BACHELOR OF EDUCATION ARTS

COURSE CODE: GEO 421

COURSE TITLE: CLIMATOLOGY

DATE: NOVEMBER 18, 2022

TIME: 2 – 4 PM

DURATION: 2HOURS

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#### INSTRUCTIONS TO CANDIDATES

ANSWER ALL QUESTIONS IN SECTION (A) AND ANY OTHER TWO QUESTIONS IN SECTION (B)

▶ KIBU OBSERVES ZERO TOLERANCE TO EXAMINATION CHEATING

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### QUESTION 1

- a. Define the following terms as applied in climate studies:
- i. Drought (2 marks)
  - ii. Seasonality (2 marks)
  - iii. Albedo (2 marks)
- b. Explain the role of oceans on the global atmospheric energy exchange. (8marks)
- c. Identify ONE major source of each of the following and explain their main contribution to global climate change.
- i. Atmospheric dust (3 marks)
  - ii. Methane (3 marks)
- d. Describe the Cyclonic and Anti-Cyclonic pressure systems (10 marks)

### QUESTION 2

- a. Describe the process involved in Greenhouse Effect. (8 marks)
- b. Describe different ways in which global tectonic movements could contribute to global climate change. (12 marks)

### QUESTION 3

Describe the three longitudinal global circulation cells and explain their influence on temperature and precipitation on different parts of the world. (20 marks)

### QUESTION 4

*Citing examples from across the world, describe the mechanisms with which the following contribute to aridity and desertification:*

- a. Coriolis Effect (4 marks)
- b. Orography (5 marks)
- c. Ocean currents (5 marks)
- d. Sinking air masses (6 marks)

### QUESTION 5

Discuss the potential impact of climate change on:

EITHER

Pastoralism in East Africa (20 marks)

OR

Energy resources in Africa (20 marks)