



UNIVERSITY EXAMINATIONS

1ST SEMESTER 2022/2023 ACADEMIC YEAR

**THIRD YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE (GEOGRAPHY)**

GEOG 312: ADVANCED CLIMATOLOGY

STREAM: R

TIME: 2 HRS

DAY: TUESDAY [2.30PM – 4.30PM]

DATE: 13/12/2022

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS: Answer question ONE and any other TWO**QUESTION ONE**

- (a) Distinguish the differences between the following concepts:
- (i) internal climate variability and external climate variability (4 marks)
 - (ii) Air mass and a front (2 marks)
- (b) Explain how plate tectonic movement affect climate (4 marks)
- (c) Explain five major anthropogenic activities that cause climate change in Africa (10 marks)
- (d) Identify six characteristics of low pressure belts (6 marks)
- (e) Outline two primary forms of radiant energy relevant to energy balance of global climate system (4 marks)

QUESTION TWO

- (a) Explain the interactions between the following components of the climate system
- i) Hydrosphere and the atmosphere (6 marks)
 - ii) Biosphere and the atmosphere (4 marks)
- (b) Discuss any five impacts of climate change on the Cryosphere (10 marks)

QUESTION THREE

- (a) Discuss five major factors which affects global atmospheric circulations (10 marks)
- (b) With an aid of a diagram, describe the three cell model of atmospheric circulation. (10 marks)

QUESTION FOUR

- (a) Explain four strategies that can be implemented to reduce heat island effect in urban areas (8 marks)
- (b) Outline three pathways through which El Nino and Southern Oscillations (ENSO) negatively affects crop production in pacific areas (6 marks)
- (c) Explain why El Nino and Southern Oscillations (ENSO) occurs only in Pacific regions of the world. (4 marks)



QUESTION FIVE

Describe five major vegetation types of the world as influenced by different climate types

(20 marks)

