



UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**FOURTH YEAR EXAMINATION FOR THE DEGREES
OF BACHELOR OF EDUCATION (ARTS) AND
BACHELOR OF SCIENCE IN GEOGRAPHY**

GEOG 431/422: APPLIED HYDROLOGY

STREAM: R

TIME: 2 HRS

DAY: THURSDAY[8.30 – 10.30A.M]

DATE: 11/04/2024

THIS QUESTION PAPER CONSISTS OF TWO (2) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.



INSTRUCTIONS:

- Answer Question **ONE (COMPULSORY)** and **ANY** other **TWO** questions
- Candidates are advised not to write on the question paper.
- Candidates must hand in their answer booklets to the invigilator while in the examination room.

QUESTION ONE (30 MARKS)

- a) Define the following term Hydrology **(2 Marks)**
- b) Explain how human being affects the water cycle **(8 Marks)**
- c) The volume of atmospheric moisture is $12,900 \text{ km}^3$. The flow rate of moisture from the atmosphere as precipitation is $577,000 \text{ km}^3/\text{yr}$. Calculate the average residence time for moisture in the atmosphere in:
- Years **(5 Marks)**
 - Days **(2 Marks)**
- d) Discuss the role of water cycle in shaping the natural landscape **(4 Marks)**
- e) Explain the role of vegetation and interception in the events of flooding **(9 Marks)**

QUESTION TWO

By the help of a well labelled diagram discuss the hydrologic cycle and explain its role in regulating climate of a region **(20 Marks)**

QUESTION THREE

- a) Discuss the major challenges experienced in managing water resources in Kenya **(10 Marks)**
- b) Explain methods used to conserve water resources **(5 Marks)**
- c) Discuss major causes of water related problems in Kenya **(5 Marks)**

QUESTION FOUR

- a) Discuss the negative social impacts of flooding in Kenya **(10 Marks)**
- b) Discuss the strategies which can be employed to mitigate flash floods in Kenya **(10 Marks)**

QUESTION FIVE

- a) Account for the formation and quality of ground water **(10 Marks)**
- b) Suggest any five strategies you would recommend to your county government to reduce the problem of water pollution **(10 Marks)**

