



"Investing in Africa's Future"

**COLLEGE OF SOCIAL SCIENCES, THEOLOGY,
HUMANITIES AND EDUCATION**

**HES322 ADVANCED STUDIES IN HYDROLOGY AND BIOGEOGRAPHY
END OF FIRST SEMESTER EXAMINATIONS**

NOVEMBER/DECEMBER 2017

LECTURER: Dr D. Mlambo

DURATION: 3HRS

GENERAL INSTRUCTIONS TO CANDIDATES

1. Do NOT write your name on the answer sheet
 2. Answer **THREE** questions only
 3. Question **1** in Section A is **Compulsory**
 4. Answer any **TWO** questions from Section B
 5. Begin your answer for each question on a new page
 6. Each question is worth **25 marks**
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SECTION A

1. With reference to Southern Africa, discuss the impact of land use change on the hydrological regime.

SECTION B

2. a) Illustrate why the concept of a unit hydrograph is considered unreliable for predicting future storm hydrographs [12 marks]
b) Describe the types of information that can be derived from a flow duration curve and explain the use of that information in hydrology [13 marks].
3. Giving examples, explain in detail any four factors that influence the size of a flood
4. Write short notes on the following:
 - a) Allopatric speciation [7 marks]
 - b) Sympatric speciation [6 marks]
 - c) Peripatric speciation [6 marks]
 - d) Parapatric speciation [6 marks]
5. Analyse the role of vicariance events in the distribution of Mesozoic and Cenozoic animals.