

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEORAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

MAIN EXAMINATION: MAY, 2017

BSc and BSc Ed. III

TITLE OF PAPER : **DRAINAGE BASIN PLANNING**

COURSE NUMBER : **GEP321**

TIME ALLOWED : **THREE (3) HOURS**

INSTRUCTIONS : **QUESTION 1 IS COMPULSORY**
ANSWER TWO QUESTIONS FROM SECTION B
ILLUSTRATE YOUR ANSWERS WITH
APPROPRIATE DIAGRAMS

MARKS ALLOCATED : **QUESTION ONE CARRIES 40 MARKS**
OTHER QUESTIONS CARRY 30 MARKS EACH

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED
BY THE INVIGILATOR

SECTION A: COMPULSORY QUESTION

QUESTION 1

- (a) With the help of diagrams discuss the effect of drainage basin characteristics on the resulting runoff hydrographs. (20 marks)
 - (b) Discuss three variables that play a major role in the shaping of land forms. (20 marks)
- (40 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

- (a) Explain how you would measure the sediment yield of a catchment. (15 marks)
 - (b) Discuss the importance of knowing the sediment yield of a catchment. (15 marks)
- (30 Marks)**

QUESTION 3

- (a) Explain the methods of estimating the available water resource of a catchment. (20 marks)
 - (b) Describe how a mass curve can be used to estimate the storage capacity of a reservoir. (10 marks)
- (30 Marks)**

QUESTION 4

- (a) Explain the key components of watershed planning. (15 Mark)
 - (b) Explain the advantages of basin based water resources planning. (15 marks)
- (30 Marks)**

QUESTION 5

Explain the major drainage basins of Swaziland with emphasis to economic development

(30 Marks)