

**UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING**

**SUPPLEMENTARY EXAMINATION: JULY 2008
B.Sc. II**

TITLE OF PAPER : WATER RESOURCES

COURSE NUMBER : GEP 228

TIME ALLOWED : THREE (3) HOURS

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

**MARKS ALLOCATED : QUESTION 1 CARRIES 40 MARKS
THE 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) Explain the methods used to estimate the available water resources of river basin. (15 marks)
 - (b) Using Figure 1 estimate the preliminary reservoir storage capacity (in m^3) for a water demand of 100,000.00 acre-ft per year. (25 marks)
- (40 marks)**

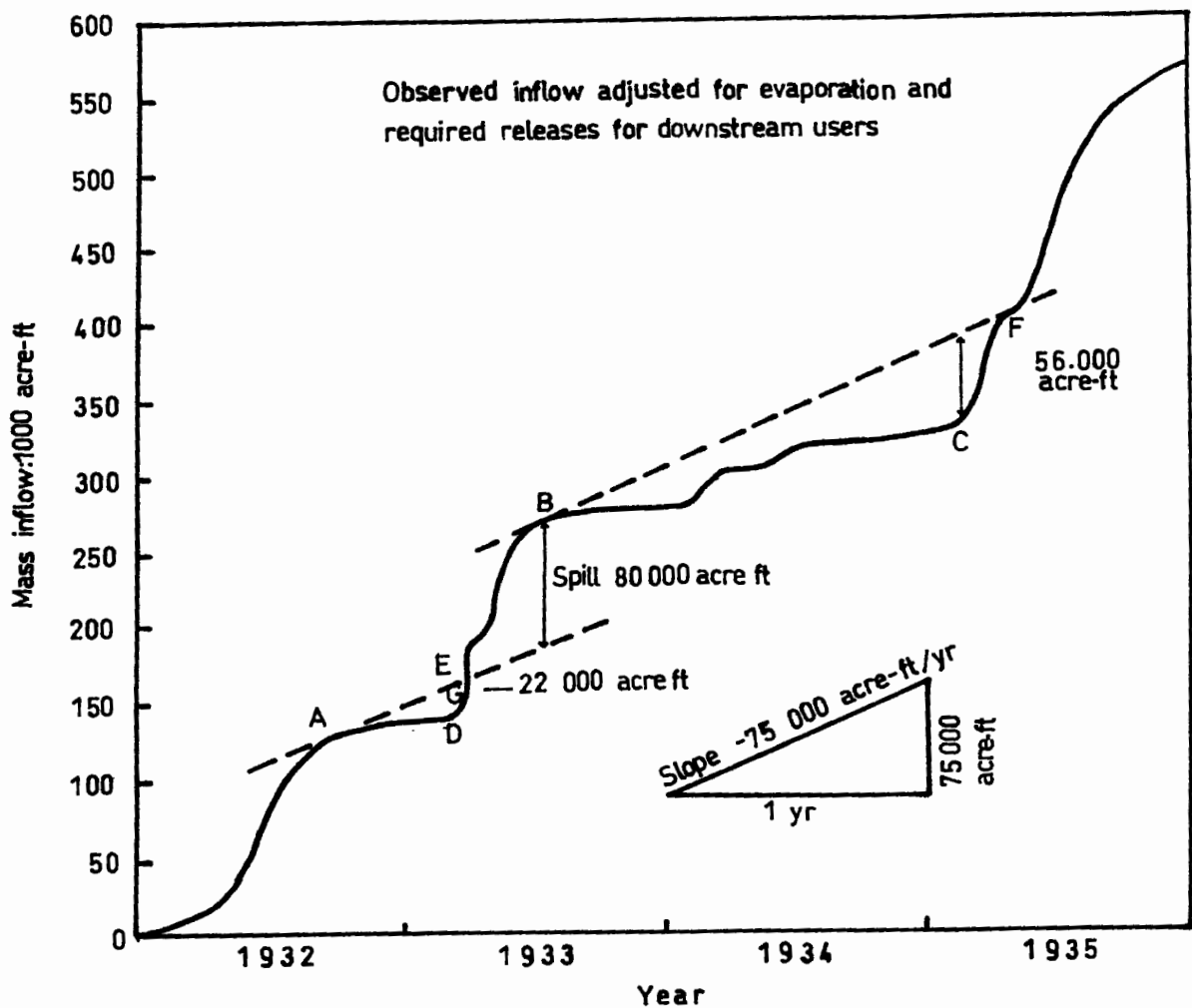


Figure 1: Mass curve for a four year period.

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- (a) Distinguish between weather and climate. (10 marks)
 - (b) Explain the three types of air masses that affect the weather of southern Africa. (20 marks)
- (30 marks)**

Question 3

- (a) Explain three methods used to estimate evaporation. (15 marks)
 - (b) Discuss the importance of measuring evaporation in the sector of water resources. (15 marks)
- (30 marks)**

Question 4

Describe and explain the factors that affect the runoff of a river basin. (30 marks)

Question 5

- (a) Discuss the importance of measuring sediment in a river basin. (15 marks)
 - (b) Explain how sediment discharge is measured in a stream. (15 marks)
- (30 marks)**