UNIVERSITY OF SWAZILAND DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

MAIN EXAMINATION:

DECEMBER, 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) Discuss the importance of data collection in water resources. (20 marks)

(b) Table 1 presents the current meter discharge measurement data for Mtilane River on December 20, 1999. Compute the discharge of the river on that day.

(20 marks)

(40 marks)

Table 1 Current meter flow velocity measurements for Mtilane River (December 20, 1999)

Vertical number	Distance from bank (m)	Depth (m)	V _{0.6} (m/s)
0	0	0	0
1	1.22	0.29	0.095
2	2.134	0.43	0.122
3	3.049	0.61	0.101
4	3.963	0.64	0.128
5	4.878	0.70	0.134
6	5.793	0.69	0.140
7	6.707	0.67	0.152
8	7.317	0.56	0.125
9	8.00	0.48	0.120
10	8.8	0.0	0.00

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- (a) Explain the phenomenon behind the layering of the atmosphere. (15 marks)
- (b) On the basis of the global pressure systems, explain the global atmospheric circulation system. (15 marks)

(30 marks)

Question 3

Discuss the factors that influence the runoff at the catchment outlet.

(30 marks)

Question 4

Explain two methods used to estimate evaporation.

(30 marks)

Question 5

Explain the major drainage basins in Swaziland and their importance in economic development. (30 marks)