**UNIVERSITY OF SWAZILAND**

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

**SUPPLEMENTARY EXAMINATION: JULY, 2010**
**BSc. I, BA 1, HUM 1, BED 1, AND IDE 1**

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| **TITLE OF PAPER** | **INTRODUCTION TO THE PHYSICAL ENVIRONMENT** |
| **COURSE NUMBER** | **GEP 111** |
| **TIME ALLOWED** | **3 HOURS** |
| **INSTRUCTIONS** | **ANSWER ONE QUESTION FROM SECTION A<br>ANSWER ANY TWO QUESTIONS FROM SECTION B<br>ILLUSTRATE YOUR ANSWERS WITH APPROPRIATE DIAGRAMS** |
| **MARKS ALLOCATED** | **EACH QUESTION OF SECTION A CARRIES 40 MARKS. THE OTHER QUESTIONS CARRY 30 MARKS EACH.** |

**Material needed: Map of Mbabane (PWD 18), graph paper**

## SECTION A: TECHNIQUES AND SKILLS
## CHOOSE AND ANSWER ONE QUESTION ONLY
## QUESTION 1

a) What is i) a map (2 marks)
ii) a map scale? (2 marks)

b) Explain how a map scale can be expressed. (6 marks)

c) Explain how you would calculate an area of an irregular feature using the *Graph Paper Method.* (10 marks)

d) With reference to the topographical map of Swaziland (PWD 18) calculate the surface area of farm No. 521 in kilometre squares and in hectares. (Show all the working clearly). (8 marks)

e) Copy and complete the table below. (6 marks)

| **Location** | **Time** | **Day** | **Location** | **Time** | **Day** |
|---|---|---|---|---|---|
| $162^0$E | 9:50 am | Thursday | $90^0$W | ..... | ..... |
| $27^0$W | ..... | ..... | $1^0$E | 07:34 am | Wednesday |
| $155^0$W | 11:00 am | Saturday | ..... | 07:00 am | ..... |

f) List six attributes of a map. (6 marks)

## QUESTION 2

a) Define the following: (10 marks)
i) Relative humidity
ii) Drainage net
iii) Soil horizon
iv) Southing
v) Dew point

b) Using the map of Swaziland (PWD 18), draw a profile from Kirkhill Dipping Tank (054227) to Ensokolweni School (117219). Use a vertical exaggeration of 10. (8 marks)

c) With reference to topographical map of Swaziland (PWD 18), state the distance from the *Equator*, *meridian of origin,* and the *Greenwich meridian* to the following locations in kilometres. (14 marks)
i) Nhlambeni School
ii) Lwandeni Trigonometrical Station

d) Explain the steps involved in measuring a river discharge using a current meter.

(8 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 3:

Discuss why in the atmosphere the ozone layer currently is threatened and how it in future may be protected.

(30 marks)

QUESTION 4:

Erosion and weathering are permanent processes. Discuss then the obstacle why the solid Earth's surface materials have not yet disappeared in the ocean.

(30 marks)

QUESTION 5:

Discuss the contribution of the major soil-forming factors for the origin of different types of soils.

(30 marks)

QUESTION 6:

Describe the inland water situation of southern Africa and discuss how supply for its population may sustainably be maintained.

(30 marks)