# UNIVERSITY OF SWAZILAND

## DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

## SUPPLEMENTARY EXAMINATION, JULY 2015

### B.A., B.Ed., BSc., BASS, IDE.

TITLE OF PAPER:    INTRODUCTION TO THE NATURAL ENVIRONMENT

COURSE NUMBER:    GEP 111

TIME ALLOWED:    THREE (3) HOURS

INSTRUCTIONS:    THIS PAPER IS DIVIDED INTO TWO SECTIONS

SECTION A:    TECHNIQUES AND SKILLS

1. ANSWER ALL QUESTIONS (COMPULSORY)
2. THIS SECTION CARRIES 40 MARKS

SECTION B:    SHORT ANSWERS / ESSAYS

1. ANSWER ANY TWO QUESTIONS
2. EACH QUESTION CARRIES 30 MARKS

SPECIAL REQUIREMENTS: None

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR

**GEP 111: INTRODUCTION TO THE NATURAL ENVIRONMENT – JULY 2015**

**SECTION A: TECHNIQUES AND SKILLS     (40 MARKS)**

**COMPULSORY: QUESTION 1**

(a) If the time at Greenwich Meridian is 0600 hrs, at what longitudes will the following times be?

| | | |
|---|---|---|
| i) | 1800 hrs | (2 marks) |
| ii) | 0950 hrs | (2 marks) |
| iii) | 1000 hrs | (2 marks) |
| iv) | 1900 hrs | (2 marks) |
| v) | 2032 hrs | (2marks) |

(b)

(i) Explain the differences between vertical and oblique aerial photographs.     (4 marks)

(ii) A camera with a focal length of 12.0 cm mounted on an aircraft flying at an altitude of 11 250 metres above sea level was used to take photographs of Mbabane (1410 m) and Siteki (580 m) urban areas. Considering the altitude of both locations, calculate the mean scale of the photographs.     (6 marks)

(iii) If the same camera was used to take photographs of both locations at a scale of 1:50 000, what would be the respective flying height of the aircraft above each location?     (4 marks)

(c) Farm number 789 on topographical map of Swaziland (PWD 12), with a scale of 1:50 000 was measured to be 50 cm$^2$ and 48 % of its area was under cultivation. Calculate the following:
(i) The surface area of farm number 789 in Km$^2$ and in hectares.     (6 marks)
(ii) The cultivated area of farm number 789 in Km$^2$ and in hectares.     (4 marks)

(d) Complete the Table 1 below.     (6 marks)
Table 1   The relationship between area on map, scale and area on Earth

| Area on Map | Scale of Map | True area on Earth |
|---|---|---|
| 3.9 cm² | 1:60 000 | ..........................m² |
| .............................. | 1:150 000 | 127.7 ha |
| 42 cm² | .................................... | 10.7 km² |

**(40 MARKS)**

## SECTION B: ANSWER ANY TWO QUESTIONS

### QUESTION 2:

Discuss the consequences related to the human-induced climate warming of the Earth.

**(30 MARKS)**

### QUESTION 3:

(i)     Describe the processes that occur during continental drifting.          (15 marks)

(ii)    Discuss why continents are generally assumed to be older than the ocean floor.

(15 marks)

**(30 MARKS)**

### QUESTION 4:

(i)     Describe and discuss where in Swaziland weathering and erosion of soils predominantly occur.          (15 marks)

(ii)    Evaluate the landscapes of Swaziland concerning their potential of weathering and erosion.          (15 marks)

**(30 MARKS)**

### QUESTION 5:

Discuss the importance of photographs and data sent by unmanned spacecraft over the last 30 years from the Galilean moons of Jupiter and the larger moons of Saturn.

**(30 MARKS)**