UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION, DECEMBER 2014

B.A, BSc, BASS, B.Ed.

TITLE OF PAPER: **INTRODUCTION TO ELEMENTARY SURVEYING & CARTOGRAPHY**

COURSE NUMBER: **GEP 213**

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

INSTRUCTIONS:

1. **ANSWER THREE QUESTIONS**
2. **QUESTION 1 IS COMPULSORY**
3. **IILUSTRATE YOUR ANSWERS WITH EXAMPLES AND CLEARLY DRAWN DIAGRAMS WHERE APPROPRIATE**

ALLOACATION OF MARKS: QUESTION 1 (COMPULSORY) CARRIES 40 MARKS WHILE THE REST CARRY 30 MARKS EACH

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

GEP 213: INTRODUCTION TO SURVEYING & CARTOGRAPHY- DECEMBER 2014

SECTION A: COMPULSORY

Question 1

a) Given that the calculated area on a map scale of 1:5 000 was 3000 cm^2 and that the lengths were measured using a chain that was 0.4% too short.
Calculate (i) the true area in hectares (3 marks)
(ii) the percentage error of the area. (3 marks)

b) Outline the three stages involved in the surveying process (15 marks)

c) Describe the principal divisions in surveying high-lighting their differences. (10 marks)

d) An agricultural extension officer visited a farmer's maize field outside Manzini and discovered that the maize crop had been infested by maize streak virus. As a practical person the extension officer used his 0.6 m pace factor to estimate the area that had been infested by maize streak virus in Table 1 below.

Table 1 An agricultural extension officer's field measurements

Maize Crop Sides	AB	BC	CD	DA
Length (paces)	100	40	87	45

(i) What method of linear measurement did the agricultural extension officer use? (2 marks)

(ii) State two limitations of the method used above. (2 marks)

(iii) Calculate the area of the maize steak virus infested field measured by the agricultural extension officer in hectares. (5 marks)

(40 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

Describe any three direct linear measurement methods used in surveying highlighting the advantages and disadvantages in each case.

(30 marks)

Question 3

a) Describe the basic characteristics of maps. (10 marks)

b) Discuss the various uses of maps giving specific examples in each case. (10 marks)

c) Explain the three categories that are used to classify maps. (10 marks)

(30 marks)

Question 4

a) Explain how photogrammetric techniques are used in surveying. (20 marks)

b) Discuss the sources of errors in chaining and how these can be minimized. (10 marks)

(30 marks)

Question 5

a) Define the following terms:

(i) Local attraction (2 marks)
(ii) Graphic elements (2 marks)
(iii) Legibility (2 marks)
(iv) Point-emphasising symbol (2 marks)
(v) Traversing (2 marks)

b) Describe the three classes of map projection systems. (20 marks)

(30 marks)