UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

RE-SIT EXAMINATION, JULY 2018

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

TITLE OF PAPER: ELEMENTARY SURVEYING & CARTOGRAPHY

COURSE NUMBER: GEP211

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: 1. ANSWER THREE QUESTIONS

2. QUESTION 1 IS COMPULSORY

3. ILLUSTRATE 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

GEP211: ELEMENTARY SURVEYING & CARTOGRAPHY – JULY 2018

SECTION A: COMPULSORY

QUESTION 1

a) A levelling survey was undertaken for a site at UNISWA, Kwaluseni Campus, and the field data for the survey is presented in the table below.

Staff reading (m)			Distance (m)	Remarks
Backsights	Intermediates	Foresights		
0.70				B. M. (653.0 m)
	1.330		0	Staff station 1
	1.972		10	Staff station 2
2.521		2.295	20	Change point 3
	1.270		30	Staff station 4
	1.775		40	Staff station 5
1.492		2.191	50	Change point 6
	1.204		60	Staff station 7
	2.104		70	Staff station 8
		3.029	80	Staff station 9

i) Use a method of your choice to undertake levelling for the site.   (20 marks)

ii) For the selected method in a), perform the arithmetic checks to ensure that the booking was accurate, showing the formulas and the working fully.   (3 marks)

iii) Briefly discuss the common errors in levelling, and how these are eliminated or minimised.   (7 marks)

b) An agricultural extension officer visited a farmer's maize field, and discovered that maize streak virus had infested the crop in a portion of the field. As a practical person, the officer used his 0.6 m pace factor to estimate the area that had been infested. The table below shows the paces for each side of the rectangular portion of the infested portion.

Infested rectangular polygon 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 this method that was used.   (2 marks)

(iii)   Calculate the area of the maize streak virus infested field measured by the agricultural extension officer, in hectares.   (6 marks)

(40 Marks)

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

a) Describe any three direct linear measurement methods used in surveying.   (15 marks)

b) Explain the advantages and disadvantages of each method described in a).   (15 marks)

(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) Outline the procedure for determining land slope using a line level.   (20 marks)

b) Explain three causes of local attraction during compass traversing.   (6 marks)

c) List two advantages and two disadvantages of compass traverse surveying.   (4 marks)

(30 Marks)

QUESTION 5

a) Define the following terms:
      (i)   Map lettering   (2 marks)
      (ii)   Graphic elements   (2 marks)
      (iii)   Legibility   (2 marks)
      (iv)   Scale   (2 marks)
      (v)   Areal feature   (2 marks)

b) Explain any five controls or external forces that influence map designing.   (20 marks)

(30 Marks)