UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

B. ED SEC II, B.SC. II, BA. Hum II, & BA. SOC. SC. II

SUPPLEMENTARY EXAMINATION JULY, 2009

TITLE OF PAPER	:	ELEMENTARY SURVEYING AND CARTOGRAPHY
COURSE NUMBER	:	GEP 213
TIME ALLOWED	:	THREE (3) HOURS
INSTRUCTIONS	:	ANSWER ANY THREE (3) QUESTIONS INCLUDING QUESTION ONE (1) WHICH IS COMPULSARY.
ALLOCATION OF MARKS	:	QUESTION ONE CARRIES FOURTY (40) MARKS AND THE OTHER QUESTIONS CARRY THIRTY (30) MARKS EACH.

SECTION I: COMPULSORY

QUESTION A

a) Figure 1 on the following page was drawn at a scale of 1:1000 in November, 2000 using chain surveying data supplied by a surveyor to the Cartographer.

i. Complete the map in Figure 1 by including all the necessary information that a map should have. **(20 marks)**
ii. Which cartographic symbols were used to produce this map? **(2 marks)**
iii. Why should chain lines be excluded in such maps? **(2 marks)**
iv. Calculate the area of the car park using simpler geometry. **(6 marks)**

b) In not more than a page, discuss briefly the relationships between modern cartography and surveying, citing relevant examples where possible. **(10 marks)**

(40 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

a) Briefly discuss the role of signals and symbols in surveying and cartography. **(10 marks)**

b) State the meaning of the signals and symbols shown in Figure 2 as used in surveying and cartography. **(10 marks)**

C) Briefly describe the land surveying process. **(10 marks)**

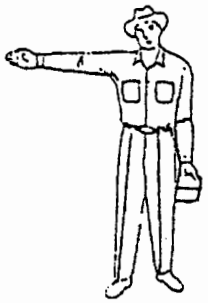
(30 marks)

QUESTION 3

a) Discuss in detail the major advantages of maps compared to globes in modern cartography. **(20 marks)**

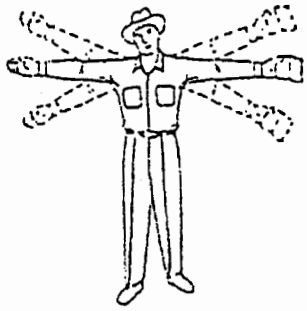
b) Briefly indicate the cartographic applications or circumstances where each (a map or globe) will be appropriate to use. **(10 marks)**

(30 marks)



i. .....

ii. .....



iii. .....

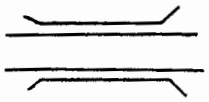
iv. .....

v. .....

vi. .....

vii. .....

viii. .....



ix. .....

x. .....

(10 marks)

Figure 2. Common surveying signals and cartographic symbols.

QUESTION 4

The following are the readings from a profile level survey of a road section of Inyoni Farm in the Lubombo Plateau, Eastern Swaziland. The survey was done by Peter Maziya on 24 December, 1964, which was a partly cloudy day. To do this, a Wild Dumpy level was used for measurement. Note that all readings are in meters. 0.599 (BS, OBM 558.031 AOD), 3.132 (FS), 2.587 (BS), 1.565, 1.911, 0.376 (FS) 2.244 (BS), 3.771, 1.985 (FS), 1.334 (BS), 0.601, 2.002 (FS).

a) Name the three types of surveyor's levels. **(3 marks)**

b) What are the two methods used for booking levelling data? **(4 marks)**

c) Book and reduce the levels using the rise and fall method in Table 1. Remember to apply the appropriate arithmetic checks **(16 marks)**

d) Outline two practical precautions which must be taken for accurate levelling. **(7 marks)**

(30 marks)

QUESTION 5

Write short notes on the following:

i. Traverse surveying. **(5 marks)**

ii Global positioning. **(5 marks)**

iii. Map compilation. **(5 marks)**

iv. Map projection. **(5 marks)**

v. Map lettering **(5 marks)**

vi. Terrestrial photogrammetry. **(5 marks)**

(30 marks)

Examination N0:.....

Table 1.....

Surveyor: ..... Name and Location of Site: .....

.....

Date:..... Instrument Type and N0.:.....

Weather: .....

Back Sight	Intermediates	Fore Sight	Rise	Fall	Reduced Level	Distance (m)	Remarks