

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION : MAY 2006

TITLE OF PAPER : ELEMENTARY SURVEYING AND CARTOGRAPHY

COURSE CODE : GEP 213

**INSTRUCTIONS: ANSWER THREE (3) QUESTIONS INCLUDING
QUESTION 1, WHICH IS COMPULSORY AND
ONE (1) QUESTION FROM EACH SECTION**

**MARKS ALLOCATION: QUESTION 1 CARRIES 40 MARKS. OTHER
QUESTIONS CARRY 30 MARKS EACH.**

**THIS QUESTION PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS
BEEN GRANTED BY THE INVIGILATOR**

**SECTION A
(COMPULSORY QUESTION)**

QUESTION 1

- (a) What is a map projection? (2 Marks)
 - (b) What are the four conditions that an ideal distortion-free map must satisfy? (12 marks)
 - (c) Write short notes on conic and cylindrical projections. (10 marks)
 - (d) Briefly describe four classes of map projections. (16 Marks)
- (40 marks)**

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION

QUESTION 2

- (a) Write short notes on the following methods of making linear measurements:
 - (i) Optical distance measurement; (5 Marks)
 - (ii) Electromagnetic distance measurement. (5 Marks)
 - (b) A survey line was measured with a tape, believed to be 20m long, and a length of 284.62m resulted. On checking, the tape was found to measure 19.95m long.
 - (i) What was the correct length of the line?
 - (ii) Given that the line lay on a slope of 1 in 20, what was the reduced horizontal length used in plotting of the survey? (15 Marks)
 - (c) It is generally accepted that the temperature at the time of taking linear measurements influences tape readings. Explain this statement. (5 Marks)
- (30 marks)**

QUESTION 3

Errors and mistakes cannot be eliminated completely during plane surveying but they can be minimised.

- (a) Outline **TWO** mistakes that can occur during taping. (10 Marks)
- (b) Briefly outline **TWO** causes of systematic errors during taping. (10 Marks)

QUESTION 3 (Continued)

- (c) Explain the problems you encountered in carrying out the following:
- (i) The measurement of the height of objects using the Abney level (clinometer) and isosceles triangle paper. (5 marks)
 - (ii) Slope measurement using the line-level. (5 marks)
- (30 marks)**

SECTION C

ANSWER ANY ONE QUESTION FROM THIS SECTION

QUESTION 4

- (a) With the aid of diagrams, describe the following map projections:
- (i) Gnomonic projection; (5 marks)
 - (ii) Stereographic projection; and (5 marks)
 - (iii) Orthographic projection. (5 marks)
- (b) Write short notes on the following map projections:
- (i) Mercator projection; and
 - (ii) Peters projection. (15 Marks)
- (30 marks)**

QUESTION 5

- (a) Write short notes on the following:
- (i) Basic graphic elements; (5 marks)
 - (ii) Primary visual variables; and (5 marks)
 - (iii) Secondary visual variables. (5 Marks)
- (b) Outline the general rules for positioning lettering for the following:
- (i) Place features; (5 marks)
 - (ii) Linear features; and (5 marks)
 - (iii) Areal features. (5 Marks)
- (30 marks)**

**UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY ENVIRONMENTAL SCIENCE AND
PLANNING**

FINAL EXAMINATION PAPER MAY 2006

TITLE OF PAPER : PHYSICAL REESOURCES

COURSE NUMBER : GEP 216

TIME ALLOWED : THREE (3) HOURS

**INSTRUCTIONS : SECTION A IS COMPULSORY
ANSWER ANY TWO QUESTIONS FROM
SECTION B
ILLUSTRATE YOUR ANSWERS WITH
APPROPRIATE DIAGRAMS AND EXAMPLES**

**MARKS ALLOCATION : QUESTION ONE (1) CARRIES 40 MARKS
THE OTHER QUESTIONS CARRY 30 MARKS
EACH.**

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SECTION A: COMPULSORY QUESTION

Question 1

- (a) The hydrograph is a graphical way of portraying stream discharge. Using a supporting diagram explain what a hydrograph attempts to portray. (20 marks)
 - (b) Briefly explain the following:
 - a. Faults
 - b. Subduction
 - c. Continental drift
 - d. The lithosphere
- (20 marks)**

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- (a) Explain the types of evidence that support the theory of continental drift (10 marks)
- (b) Explain major components of a floodplain. (10 marks)
- (c) The atmosphere is subdivided on the basis of temperature change. Using a labelled diagram, illustrate the atmospheric divisions (10 marks)

Question 3

- (a) Give an account of atmospheric motion (15 marks).
- (b) Explain why the Earth experiences seasonal distribution of rainfall? (15 marks)

Question 4

- (a) Explain what is meant by greenhouse gas and what are these gases? (15 marks)
- (b) Explain the types of evidence that support the theory of continental drift. (15 marks).

Question 5

- (a) Clouds are usually divided into four main families on the basis of their height above the ground. Briefly describe the four families. (15 marks)
- (b) Using a diagram, draw a typical configuration of a weather station identifying the main instruments found. (15 marks)