

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING
SUPPLEMENTARY EXAMINATION, JULY 2012
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. ILLUSTRATE YOUR ANSWERS WITH
EXAMPLES AND CLEARLY DRAWN
DIAGRAMS WHERE APPROPRIATE**

ALLOCATION 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: INTRO. TO SURVEYING & CARTOGRAPHY – JULY 2012

SECTION A: COMPULSORY

Question 1

- a) It is generally accepted that the temperature at the time of taking linear measurements influences tape reading. Explain. (10 marks)
- b) Briefly define, clearly highlighting the difference between, a map scale and an area scale. (6 marks)
- c) A farmer undertook a project of developing a portion of her farm. She commissioned a survey, where the surveyor mapped the data into a map of scale 1:50 000. Overall, the portion under development was estimated using a 1cm^2 grid as 33.5cm^2 .
- (i) What is the true area of the farm portion under development in:
1. Square metres (8 marks)
 2. Hectares? (3 marks)
- (ii) However, it was found that the lengths of the farm portion were measured using a 50m tape that was 0.4% longer than a standard.
1. Calculate the correct true area of the development site. (10 marks)
 2. Calculate the percentage error of the calculated area. (3 marks)
- [40 Marks]**

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- a) Briefly describe two indirect methods of linear measurements. (10 marks)
- b) 'Errors and mistakes cannot be eliminated completely during plane surveying, but they can be minimised.'
- (i) Describe two mistakes that can occur during taping. (10 marks)
- (ii) Outline the steps you would take to calibrate a fabricated odometer. (10 marks)
- [30 Marks]**

Question 3

- a) Differentiate between plane and geodetic surveying. (12 marks)
- b) State five (5) errors and/or mistakes likely to arise during levelling. (10 marks)
- c) State two advantages and two disadvantages of direct linear measurements. (8 marks)
- [30 Marks]**

GEP 213: INTRO. TO SURVERYING & CARTOGRAPHY – JULY 2012

Question 4

- a) What are the general cartographic rules for positioning lettering for the following:
- (i) Areal features; (5 marks)
 - (ii) Place features; and (5 marks)
 - (iii) Linear features. (5 marks)
- b) Name the three categories which could be used for the classification of maps. (9 marks)
- c) Write short notes on basic graphic elements. (6 marks)
- [30 Marks]**

Question 5

- a) Write notes on map classification. (20 marks)
- b) With the aid of diagrams, describe the following map projections:
- (i) Cylindrical projection; and (5 marks)
 - (ii) Conic projection (5 marks)
- [30 Marks]**