

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING

SUPPLEMENTARY EXAMINATION, JULY 2015

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: INTRODUCTION TO SURVEYING & CARTOGRAPHY-JULY 2015**SECTION A: COMPULSORY****Question 1**

- a) Define the following terms;
- (i) Surveying (2 marks)
 - (ii) Curvature angle (2 marks)
 - (iii) Benchmark (2 marks)
 - (iv) Tacheometry (2 marks)
 - (v) Datum (2 marks)
- b) A farmer embarked on a project to develop a portion of his farm. He commissioned a surveyor who mapped the data on a map scale of 1: 25 000. The overall portion of the area under development was estimated using a 1 cm² grid as 87.5 cm². Determine the true area of the farm portion under development in;
- i) Square metres (7 marks)
 - ii) Hectares (3 marks)
- c) A Wild dumpy level was used to measure a distance between two trees in a botanical garden. The upper stadia of the level read 2.031 m, while the lower stadia read 1.472 m.
- (i) Calculate the distance between the two trees (5 marks)
 - (ii) If the above readings were correctly taken, what was the middle cross hair reading supposed to be? (5 marks)
- d) Describe the survey process, clearly highlighting the 3 stages involved. (10 marks)
- (40 marks)**

SECTION B: ANSWER ANY TWO QUESTIONS**Question 2**

- a) Explain the precautions that ought to be taken into account when using surveying instruments. (10 marks)
- b) Describe how the Electromagnetic Distance Measurement instrument operates. (10 marks)

- c) Briefly describe the two principal divisions or classifications of surveying, highlighting how they differ from each other. (10 marks)
(30 marks)

Question 3

- a) Outline the sources of error in chain surveying. (6 marks)
- b) Discuss the general cartographic rules used for positioning lettering for the following;
- i) Areal features (8 marks)
 - ii) Linear features (8 marks)
 - iii) Place features (8 marks)
- (30 marks)

Question 4

- a) A student whose pace factor was 0.4 m/pace walked a 50 m stretch marked on a sloping ground with following paces 134, 135, 134, 134, 137, 137, 139 and 140. Determine the resultant error in his pace length for the sloping ground. (15 marks)
- b) One of the errors during taping emanates from using a non-standard tape measure. In order to get the correct length, it is necessary to do some corrections. The length of a line measured with a 30 m tape was found to be 0.009 m shorter under the same conditions of support, tension and temperature as existed during the undertaking of the line measurement. Determine the actual length of the line. (15 marks)
- (30 marks)

Question 5

Explain how any four visual variables can be used in making graphic elements appear more or less distinctive and prominent. (30 marks)