

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

**FINAL EXAMINATION, APRIL/MAY 2014**

**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**

17

**GEP 213: INTRODUCTION TO SURVEYING & CARTOGRAPHY-APRIL/MAY  
2014**

**SECTION A: COMPULSORY**

**Question 1**

- a) Define map projection (2 marks)
- b) Globes are said to portray the ideal nature of the earth. Discuss the inherent problems of globes that justify the wide use of map projections to produce conventional maps. (20 marks)
- c) Outline the conditions that an ideal distortion –free map must satisfy. (8 marks)
- d) An area identified for a town development project on a map of scale 1: 50 000 was estimated using a 1cm<sup>2</sup> grid as 28.5 cm<sup>2</sup>. Calculate the actual area on the ground of the development site in;
- (i) Square metres (7 marks)
- (ii) Hectares (3 marks)

**[40 Marks]**

**SECTION B: ANSWER ANY TWO QUESTIONS**

**Question 2**

- a) Describe the principal divisions or classifications of surveying highlighting how they differ from each other. (15 marks)
- b) Describe the stages involved in the surveying process. (15 marks)

**[30 marks]**

**Question 3**

- a) Define the following terms:
- i) Datum (2 marks)
- ii) Benchmark (2 marks)
- iii) Geoid (2 marks)
- iv) Legibility (2 marks)
- v) Area Scale (2 marks)
- b) Explain how EDM instruments and GPS can be used in surveying and mapping. (20 marks)

**[30 marks]**

**Question 4**

- a) Explain the following classes of symbols, highlighting two examples of uses in each case.
- (i) Point-emphasising symbols (5 marks)
  - (ii) Line-emphasising symbols (5 marks)
  - (iii) Area-emphasising symbols (5 marks)
- b) The basic graphic elements can be made to appear more or less distinctive and prominent by employing visual variables. Discuss the four primary visual variables.

(15 marks)

**[30 marks]**

**Question 5**

- a) Define photogrammetry. (4 marks)
- b) Discuss the factors influencing the choice between aerial photo survey and conventional ground survey for mapping. (8 marks)
- c) Outline the methods used for direct linear measurements. (18 marks)

**[30 marks]**