

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION: JULY 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

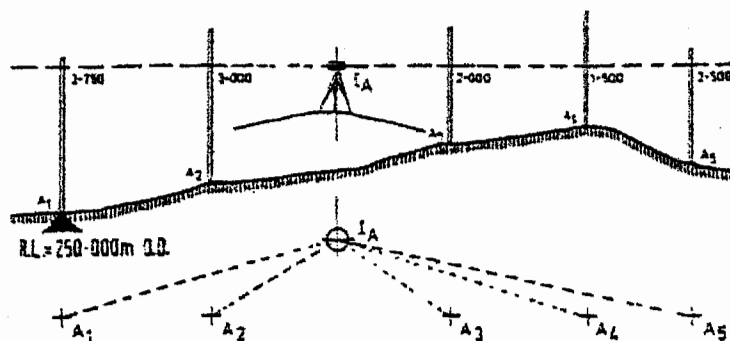
- (a) Write short notes on plane surveying. (10 Marks)
- (b) State **TWO** advantages and **TWO** disadvantages of pacing as a method for measuring distance. (10 Marks)
- (c) What reading is required to produce a horizontal distance of 15.08m between site pegs, one being 0.66m above the other? (10 Marks)
- (d) Like with all measurements, levelling is never absolutely free from error. State **Five** likely errors and/or mistakes in levelling. (10 marks)
(40 marks)

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION

QUESTION 2

- (a) Outline the two methods used for reducing level readings. (10 Marks)
- (b) In the figure below point A_1 is known to be 250.000m above O.D. Since the R.L. at A_1 is known, calculate, by either of the methods mentioned in (a) above, the reduced levels of the other stations. (20 marks)
(30 marks)



QUESTION 3

- (a) One of the errors during taping is using a non-standard tape. In order to get the correct length, it is necessary to do some corrections. The length of a line measured with a 30m tape is 308.550m. When the tape is compared to the standard it is found to be 0.009m too long under the same conditions of support, tension, and temperature as existed during measurement of the line. Compute the length of the line. (10 marks)
- (b) Apart from the error introduced by using a non-standard tape, briefly outline **TWO** causes of systematic errors during taping. (10 marks)
- (c) Explain how the following instruments are used:
- (i) Abney level (clinometer); and (5 marks)
 - (ii) Cross-staff. (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) Cylindrical projection; and (5 marks)
 - (ii) Conic projection. (5 marks)
- (b) Write short notes on map classification. (20 Marks)
- (30 marks)**

QUESTION 5

Write short notes on the following:

- (i) Point marks; (5 marks)
 - (ii) Line marks; (5 marks)
 - (iii) Area marks; (5 marks)
 - (iv) Arrangement of component marks; (5 marks)
 - (v) Texture of component marks; and (5 marks)
 - (vi) Orientation of marks. (5 marks)
- (30 marks)**