

UNIVERSITY OF SWAZILAND
FACULTY OF SCIENCE
SUPPLEMENTARY EXAMINATION 2010

B.A II, B.Ed. II, BSc. and B.A.S.S II.

TITLE OF PAPER : ELEMENTARY SURVEYING AND CARTOGRAPHY

COURSE NUMBER : GEP 213

TIME ALLOWED : THREE (3) HOURS

INSTRUCTIONS : ANSWER ANY THREE (3) QUESTIONS INCLUDING
QUESTION ONE (1) WHICH IS COMPULSARY.
MARKS WILL CONSIDER CLEARLY ARTICULATED
AND LOGICAL WORK FOR ALL CALCULATIONS

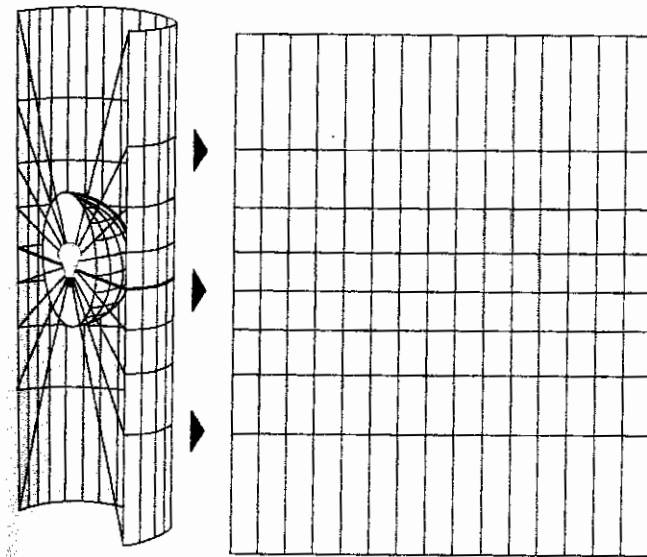
ALLOCATION OF MARKS : QUESTION ONE CARRIES FOURTY (40) MARKS
AND THE OTHER QUESTIONS CARRY THIRTY
(30) MARKS EACH.

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE
INVIGILATOR**

SECTION I : COMPULSARY

QUESTION ONE

- a) i. Name the cartographic technique illustrated in the following Figure. (2 marks)



- ii. State the three (3) categories of this cartographic technique. [6 marks]
- iii. What is the name of this technique that is used in Swaziland? (2 mark)
- b) Describe briefly the major cartographic break through that was achieved by the technique shown on the above Figure citing the major differences between globes and maps. (10 marks)
- c) Define **cartography** as used by modern cartographers. (2 marks)
- d) Discuss in detail the nature and work of modern cartographers, stating the techniques involved in the work and the spectrum of **human resource personnel** involved in modern cartographic departments. (18 marks)

(40 marks)

SECTION B : ANSWER ANY TWO QUESTIONS

QUESTION TWO

- a) State the instruments or techniques that are used in linear distance measurements as well as in optical distance measurements. (10 marks)
- b) Name the three types of a surveyor's level (6 marks)
- c) Describe in detail how distance is measured using a surveyor's level. Your answer should clearly state all the human and material resources required for measurement. (14 marks)
- (30 marks)**

QUESTION THREE

- a) i. Name any two methods that could be used to compute areas from maps other than the grid method. (2 marks)
- ii. State two limitations of the grid method as a means of area estimation. (6 marks)
- b) i. An area identified for a town development project on a map of scale 1:50 000 was estimated using a 1 cm² grid as 20.0 cm². Compute the true area of the development site in square meters and hectares. (2 marks)
- ii. Describe in detail how you could use the grid method to estimate the area of a given development site shown on a scaled map. (10 marks)
- c) i. Define the phrase **map compilation** as used in cartography. (2 marks)
- ii. Discuss briefly what geographical attribute data would be required for a **worksheet** to produce a map to reflect the number of people who voted during the 2008 elections in all the administrative regions of Swaziland. (8 marks)
- (30 marks)**
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QUESTION FOUR

- a) What are the two (2) methods of slope measurements besides clinometers? (4 marks)
- b) A gully was increasing at a rate of 30.0 mm per month on average, a Land Use Planner used an abney level to measurement its depth. During measurement the abney level recorded an angle of elevation from the horizontal plane of sight as 20° . The survey station was 30.0 m away from the gully and the surveyor's eyesight height was 1.6 m.
- i. Compute the depth of the gully. (10 marks)
- ii. How long did the gully take to reach this depth? (16 marks)
- (30 marks)

QUESTION FIVE

- a) Briefly discuss the role of symbols in modern cartography. (10 marks)
- b) Use the appropriate lettering and symbols or even shading where necessary to complete the ecological zone map of Swaziland shown on Figure 2. Figure 3 may be used as a source for this exercise. Remember to submit your map compilation. (10 marks)
- c) Use point symbols to indicate the major towns of each ecological zone. (5 marks)
- d) Name any two sources of information that you would require to prepare a manual or hand worksheet for this kind of map. (5 marks)
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Exam N0:

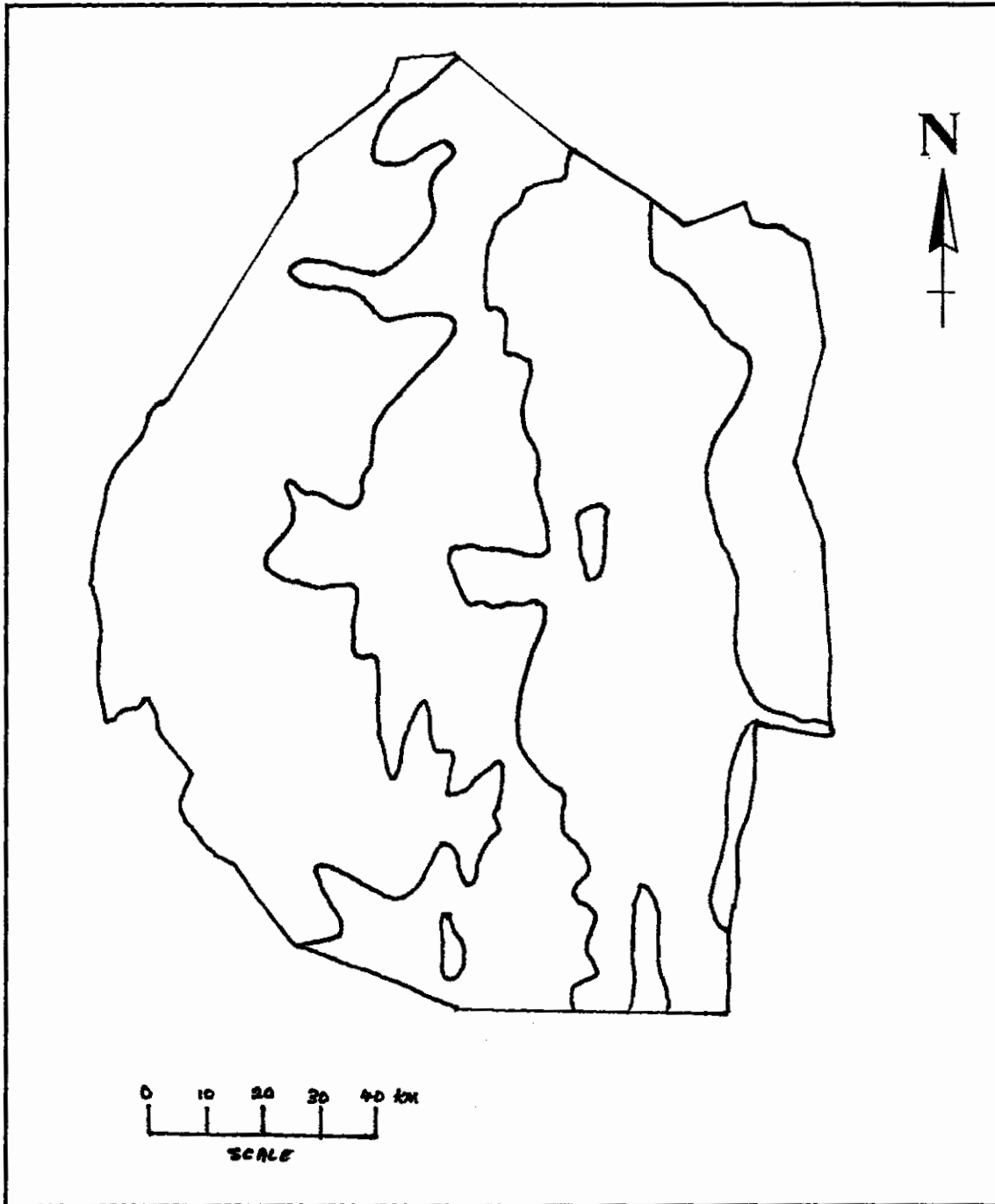


Figure 2. Major ecological zones of Swaziland