UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION, DECEMBER 2011

B.A., BSc., BASS, B. Ed.

TITLE OF PAPER: INTRODUCTION TO THE PHYSICAL
                    ENVIRONMENT

COURSE NUMBER: GEP 111

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 111: INTRO TO THE PHYS. ENVIRO, DECEMBER 2011

SECTION A: TECHNIQUES AND SKILLS
(COMPULSORY)

Question 1:

(a) Explain the following:

      (i)   Local time
      (ii)   Scale
      (iii)   Southing
      (iv)   Contour line
      (v)   Drainage net   (10 marks)

(b)

  (i)   Distinguish between vertical and oblique aerial photographs.   (4 marks)

  (ii)   A camera with a focal length of 12.0 cm mounted on an aircraft flying at an altitude of 11 250 metres above sea level was used to take photographs of Mbabane (1410 m) and Siteki (580 m) urban areas. Considering the altitude of both locations, what would be the mean scale of the photographs?   (6 marks)

  (iii)   If the same camera was used to take photographs of both locations at a scale of about 1:50 000 what would be the respective flying height of the aircraft above each location?   (4 marks)

(c) Farm number 922 on topographical map of Swaziland (PWD 12), with a scale 1: 50 000, was found to be 50 cm², and 58% of it cultivated. Calculate the following:
          i) The surface area of farm number 922 in km² and in hectares.   (6 marks)
          ii) The cultivated area of farm number 922 in km² and in hectares.   (4 marks)

(d). Express the following as representative fractions, and arrange the scales according to size staring with the smallest.
      (i)   1 cm to 850 m
      (ii)   15 cm to 3 km
      (iii)   20 cm to 5.5 km   (6 marks)

[40 Marks]

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SECTION B: THEORY
(ANSWER ANY TWO QUESTIONS)

Question 2:

Compare the terrestrial planets and some of the larger moons of Jupiter and Saturn according to their rock composition and their atmosphere. Which conclusion may be drawn for the potential existence of life for each of them?

[30 Marks]

Question 3:

Describe and discuss the events that are related to the process of continental drifting.

[30 Marks]

Question 4:

Describe and discuss the different types of layers of the Earth's atmosphere. Illustrate your answer with a schematic diagram.

[30 Marks]

Question 5:

Describe the freshwater situation of southern Africa, and discuss how regular supply for its population may sustainably be maintained.

[30 Marks]