UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2012

TITLE OF PAPER: POPULATION ESTIMATES AND PROJECTIONS

COURSE CODE: DEM 301

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTIONS 1 AND 2 AND ANY OTHER
                     QUESTION. EACH QUESTION IS WORTH 25
                     MARKS.

REQUIREMENTS: CALCULATOR

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN
GRANTED BY THE INVIGILATOR

SECTION A: COMPULSORY QUESTIONS

QUESTION 1

a. Define the following statistical measures commonly used by a demographer: [4]
   i.   Rate; and
   ii. Proportion.

b. The reliability of projections also depends primarily on the availability and accuracy of the base data. Before accepting a population to serve as a base for the projections, an evaluation of the completeness of enumeration and the extent of age misreporting should be undertaken and adjustments made as may be required. State any one procedure you will use to detect age misreporting and describe its computational procedure and interpretation.   [5]

c. Given the population of Swaziland as follows:

Year:	Population
30/06/1976	494,534
30/06/1986	681,058
30/06/1997	929,718

   i.   Estimate the population of Swaziland as of 30 June 2010 assuming the exponential growth model and using the most recent rate of growth between 1986 and 1997.   [6]

   ii. In which year will the 1997 population triple using the most recent rate of growth?   [4]

   iii. What assumption is being made by choosing the exponential growth model? [2]

   iv. Explain why you would not choose a logistic model to project the population of Swaziland over the period of five years.   [4]

Question 2

a. Discuss each of the following demographic terms: [6]
   i.   An estimate;
   ii. A projection; and
   iii. A forecast.

b. Contrast the following demographic concepts: [8]
   i. Principal series and analytic series;
   ii. Population shifting and population interpolation;
   iii. Inter-censal estimate and post-censal estimate; and
   iv. Direct data and indirect data.

c. Why do we need credible HIV and AIDS population estimates? [4]

d. Outline four approaches which a demographer would use to evaluate population forecasts. [2]

e. Why is there a need for a combination of assumptions in population projections? [3]

f. List four primary factors that influence the frequency and nature of revisions of projections. [4]

SECTION B: Answer either question 3 or question 4

Question 3

a. State three most important factors in determining the method used for estimating a population of an area? [3]

b. Discuss briefly any five guidelines for population estimation and projections. [10]

c. Contrast the following concepts:

   i. Stochastic models, and deterministic models; and [4]

   ii. Mathematical extrapolations and component methods advantages. [5]

d. What are the limitations of model populations in projections? [3]

Question 4

Discuss in detail the Ratio method. Illustrate your answer when projecting northern and southern region population of a country and using the following guideline:

   i. Rationale; and including data and/or parameters required; [5]

   ii. Assumptions; [4]

   iii. Computational procedure; [8]

   iv. Advantages; and [4]

   v. Disadvantages. [4]