

**UNIVERSITY OF SWAZILAND**  
**DEPARTMENT OF STATISTICS AND DEMOGRAPHY**  
**FINAL EXAMINATION PAPER 2009**

**COURSE TITLE:** **POPULATION ESTIMATES AND PROJECTIONS**

**COURSE CODE:** **DEM 301**

**TIME ALLOWED:** **TWO (2) HOURS**

**INSTRUCTIONS:** **ANSWER ANY THREE (3) QUESTIONS**

**SPECIAL REQUIREMENT:** **CALCULATOR**

**QUESTION 1 (20+5 marks)**

- a) Discuss each of the following mathematical population growth models:
- i) arithmetic growth model
  - ii) geometric growth model
  - iii) exponential growth model
  - iv) logistic curve
- b) The Component Method of population estimation tends to be unsuitable for use in developing countries. Explain.

**QUESTION 2 (8+5+12)**

- a) What are the major advantages and limitations of the cohort-component method over mathematical methods?
- b) What are post-censal estimates? Illustrate your answer.
- c) Given the population of Swaziland during the following years, Estimate the population in June 30, 2007 using the geometric growth model. Comment on why this estimate is different from the actual population count in 2007 of 1 018 449. How many years will it take for the population to reach 1.2 million? Use geometric growth model.

30 <sup>th</sup> June 1986	681 058
30 <sup>th</sup> June 1997	929 718

**QUESTION 3 (7 + 12+ 6 marks)**

- a) Briefly discuss the rationale and uses of variants in population projections.
- b) Show how in the calculation of the projected number of births Using the Period-Fertility Method, the total number of births per annum are estimated. Use a fictitious example to illustrate your answer.
- c) What is the difference between a population projection and a population forecast?

**QUESTION 4 (3 +4+6+12 marks)**

- a) What are the basic assumptions underlying population projections?
- b) What factors influence the length of the projection period?
- c) Outline the factors that influence the frequency and nature of projections' revision.
- d) Describe the computational procedures when projecting population using cohort component method.