# UNIVERSITY OF SWAZILAND

RESIT EXAMINATION PAPER 2017

TITLE OF PAPER: INTRODUCTION TO DEMOGRAPHY

COURSE CODE: DEM 102

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS.

EACH QUESTION IS WORTH 25 MARKS.

REQUIREMENTS: CALCULATOR

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

## Question 1 [25 marks]

a. Defining all symbols, describe briefly the balancing equation which relates the number of people in a population at two points in time. [6]

b. Suppose there were 100,000 forty year olds in a particular population and that the growth rate of the population in this age group was 3% per annum.

   i. Estimate the number of these forty year olds in five years time, using the exponential growth model. [5]

   ii. What is the advantage of using the exponential growth model? [4]

c. Briefly describe the following models of population growth:

   i. Arithmetic; and [5]

   ii. Geometric. [5]

## Question 2 [25 marks]

You are provided with information in Table Q2.1 together with supplementary data for a certain Country X in Africa in year 2000.

**Table Q2.1: Mid-year female population and live births by maternal age, 2000**

| Age Group | Females | Age-specific fertility rate |
|---|---|---|
| 15-19 | 77844 | 0.0825 |
| 20-24 | 64760 | 0.1931 |
| 25-29 | 53464 | 0.1905 |
| 30-34 | 40074 | 0.1714 |
| 35-39 | 34193 | 0.126 |
| 40-44 | 26600 | 0.0655 |
| 45-49 | 24364 | 0.0361 |

| **Additional demographic data on Country X, 2000** | |
|---|---|
| General sex ratio | 89.5 |
| Female total population | 359480 |
| Infant deaths | 4256 |
| Maternal deaths | 42 |
| Still births | 1450 |

Using the data provided above, answer the following questions:

a. Calculate the crude birth rate and interpret your answer; [11]

b. Calculate the total fertility rate and interpret your answer; [3]

c. Calculate the general fertility rate; [3]

d. Calculate the infant mortality rate and explain your answer; and [4]

e. Calculate the maternal mortality rate and interpret your answer. [4]

**Question 3** **[25 marks]**

a. Write short but comprehensive notes on the following in the study of demography:

i. Population census; [4]

ii. The usefulness of mortality and morbidity statistics; [4]

iii. Ratios; [4]

iv. Rates. [4]

b. Describe a population pyramid and how it is constructed. [9]