UNIVERSITY OF SWAZILAND

DEPARTMENT OF STATISTICS AND DEMOGRAPHY

MAIN EXAMINATION 2015


TITLE OF PAPER : INTRODUCTION TO DEMOGRAPHY


COURSE CODE : DEM 101


TIME ALLOWED : TWO (2) HOURS


INSTRUCTIONS : ANSWER ALL QUESTIONS;
    SHOW ALL YOUR WORKINGS WHERE
    APPLICABLE.


REQUIREMENTS : CALCULATOR


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

**Question 1**                                                                           **[Total=25 marks]**

You are provided with data in Table 1 for region A in Country X.

**Table 1: Data for region A of Country X**

| Indicator | 2000 | 2010 |
|---|---|---|
| Population (mid-year) | 100 000 | 120 000 |
| Number of women 15-49 | – | 20 000 |
| Births | 5 000 | 6 000 |
| Deaths | 2 000 | 1 800 |
| Number of women 15-49 | – | 20 000 |
| Girls under age 5 | – | 20 000 |
| Children under age 5 | – | 40 000 |
| Births between 2000 and 2010 | 55 000 | |
| Deaths between 2000 and 2010 | 19 000 | |

Based on the data in Table 1:

a) Comment on what happened to the crude birth rate and crude death rate for region A between 2000 and 2010.                                                                     [4]

b) Crude rates are not recommended for drawing comparisons between populations. Explain their limitations.                                                                              [4]

c) Calculate the rate of natural increase in 2000 and 2010.                             [3]

d) Calculate the general fertility rate for region A in 2010.                          [3]

e) What was the net migration of region A for Country X between 2000 and 2010?        [4]

f) Using the **geometric** growth formula, calculate the annual rate of growth of the population between 2000 and 2010.                                                          [4]

g) Assuming an **exponential** growth of 3 per cent for region A, in how many years would it take for the population of the region double in size?                              [3]


**Question 2**                                                                           **[Total=25 marks]**

a) Explain three advantages of demographic surveys over population censuses.          [6]

b) Briefly explain two limitations of population registers in developing countries.   [4]

c) What are the advantages of multi-round surveys over single-round surveys?          [4]

d) Distinguish between defacto and dejure population count.                            [3]

e) Outline the key characteristics of the following data sources:

    i.   Population register;                       [2]

    ii.  Vital statistics system; and                      [2]

    iii. Census.                                                [4]

## Question 3                                                            [Total=25 marks]

a. Describe how fertility, mortality and migration processes affect the age-sex composition of a population. [9]

You are given data on both sexes for population, deaths and births for Country Y in 2009.

**Table 2: Demographic data for country Y in 2009**

| Age | Population (mid-year) Male | Female | Deaths, 2009 Male | Female |
|---|---|---|---|---|
| under 1 | 1645 | 1573 | 22 | 16 |
| 1-4 | 7748 | 7390 | 4 | 3 |
| 5-9 | 9263 | 8837 | 2 | 2 |
| 10-14 | 8767 | 8347 | 3 | 2 |
| 15-19 | 9103 | 8651 | 12 | 4 |
| 20-24 | 9676 | 9345 | 16 | 5 |
| 25-29 | 10696 | 10617 | 20 | 7 |
| 30-34 | 10877 | 10986 | 24 | 9 |
| 35-39 | 9902 | 10061 | 28 | 11 |
| 40-44 | 8692 | 8924 | 30 | 15 |
| 45-49 | 6811 | 7062 | 33 | 19 |
| 50-54 | 5515 | 5836 | 42 | 25 |
| 55-59 | 5034 | 5497 | 61 | 37 |
| 60-64 | 4947 | 5669 | 94 | 61 |
| 65-69 | 4532 | 5579 | 128 | 89 |
| 70-74 | 3409 | 4586 | 148 | 113 |
| 75-79 | 2400 | 3722 | 158 | 143 |
| 80-84 | 1366 | 2568 | 138 | 163 |
| 85+ | 858 | 2222 | 152 | 311 |

| Age | Births, 2009 Male | Female |
|---|---|---|
| 10-14 | 152 | 99 |
| 15-19 | 604 | 598 |
| 20-24 | 1376 | 1200 |
| 25-29 | 1381 | 1241 |
| 30-34 | 1226 | 1120 |
| 35-39 | 517 | 456 |
| 40-44 | 58 | 45 |
| 45-49 | 19 | 14 |
| 50-54 | 9 | 4 |

In addition to data given in Table 2 you are also provided with the following data:

| Maternal deaths | 423 |
|---|---|
| Miscarriages | 6599 |
| Still births | 8921 |
| Induced abortions | 12561 |

b. Based on the data provided above, calculate the following measures:

i.   Maternal mortality rate;                                                [2]
ii.  Child dependency ratio;                                                [2]
iii. Total fertility rate;                                                  [6]
iv.  Infant mortality for both sexes combined; and                          [3]
v.   Age-specific death rates for females in the reproductive lifespan.      [3]