UNIVERSITY OF SWAZILAND

DEPARTMENT OF STATISTICS AND DEMOGRAPHY

SUPPLEMENTARY EXAMINATION 2014

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|---|---|---|
| TITLE OF PAPER | : | INTRODUCTION TO DEMOGRAPHY |
| COURSE CODE | : | DEM 101 |
| TIME ALLOWED | : | TWO (2) HOURS |
| INSTRUCTIONS | : | ANSWER ALL QUESTIONS;<br>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]**

a. Give four reasons why age is an important demographic variable. [4]

b. Briefly explain what is meant by the following two terms: [4]
   i. Age heaping
   ii. Age shifting

c. Compare and contrast each pair of concepts listed below:
   i. Sampling errors and nonsampling errors; [2]
   ii. Incidence and prevalence; [2]
   iii. De jure census and De facto census; and [2]
   iv. Fecundity and fertility. [2]

d. Describe three problems involved in Africa in setting up and maintaining a countrywide population register. [3]

e. Explain four problems associated with measuring migration. [4]

f. Outline the essential features of a civil registration system. [2]

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

a. Using information from the table below for a certain region in country A, answer the following questions, using the geometric growth formula for 2a(iii)-(vi):

| Year | Mid-year population |
|---|---|
| 1970 | 3069 |
| 1980 | 3772 |
| 1990 | 4721 |
| 2000 | 5413 |

i. What was the per cent change in the region of country A in **each** decade? [3]

ii. Calculate the average annual numerical increase in the population in each decade? [3]

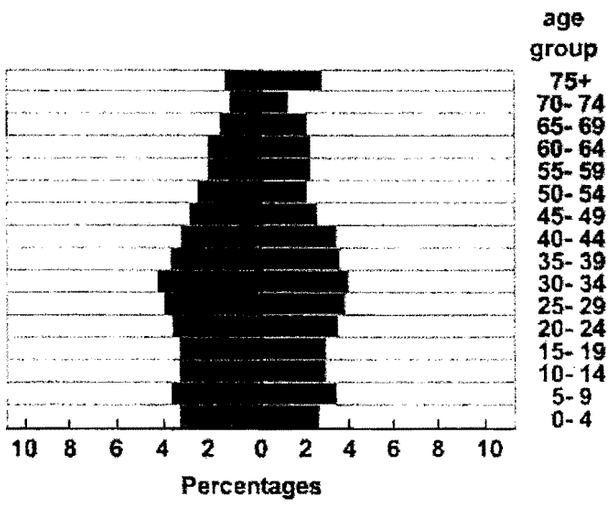
iii. Calculate the average annual per cent growth rate in each decade? [3]

iv. Using your answers in part iii), how long would the population in the region of country A take to triple for each decade? [3]

v. What assumption(s) are you to making to reach your answer in part (iv)? [3]

vi. Using the average growth rate from (iii), estimate the year in which the population reached 2.5 million. [2]

b. The figure given below belongs to a population of a country B.




i. Interpret fully the figure above for Country B [4]

ii. State two measures of population composition and write their respective formula. [4]

**Question 3** **[Total=25 marks]**

a. The data given in table below is for a certain developing African country in 1990.

**Mid-year female population and per cent distribution of live births by maternal age, 1990**

| Age | Female population | Per cent distribution of live births |
|---|---|---|
| 10-14 | 15,200 | 0.46 |
| 15-19 | 18,120 | 2.95 |
| 20-24 | 20,255 | 29.51 |
| 25-29 | 21,124 | 27.57 |
| 30-34 | 19,687 | 18.97 |
| 35-39 | 27,899 | 14.52 |
| 40-44 | 24,784 | 4.45 |
| 45-49 | 22,123 | 1.57 |

In addition, the following information is provided for the same year:

| | |
|---|---|
| Total female population | 340,100 |
| Children under five years | 96,100 |
| Girls under five | 51,522 |
| Total live births | 10,200 |
| General sex ratio | 98 |
| Sex ratio at birth | 102 |
| Post neonatal deaths | 109 |
| Neonatal deaths | 147 |
| Early neonatal deaths | 107 |
| Still births | 200 |
| Maternal deaths | 243 |

Using the information given above to answer the questions for 3a(i)-viii):

i. Calculate the crude birth rate and interpret your answer; [4]

ii. Why is a crude birth rate not a good indicator for comparing populations? [2]

iii. Calculate the general fertility rate; [2]

iv. Calculate the total fertility rate and comment on your answer; [7]

v. Calculate the gross reproduction rate; [2]

vi. Calculate the infant mortality rate and comment on your answer; [4]

vii. Calculate the child woman ratio; [2]

viii. Calculate the mean age of child bearing; [2]