UNIVERSITY OF SWAZILAND

DEPARTMENT OF STATISTICS AND DEMOGRAPHY

MAIN EXAMINATION 2018:

HEALTH SCIENCES STREAM

TITLE OF PAPER	:	**INTRODUCTION TO DEMOGRAPHY**
COURSE CODE	:	**DEM 101**
TIME ALLOWED	:	**TWO (2) HOURS**
INSTRUCTIONS	:	**ANSWER QUESTIONS 1 AND 2 AND EITHER QUESTION 3 OR 4; SHOW ALL YOUR WORKINGS WHERE APPLICABLE.**
REQUIREMENTS	:	**CALCULATOR**

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

Question 1 (COMPULSORY) **[25 marks]**

a) Explain three advantages of demographic surveys over population censuses. [6]
b) Explain in brief any 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 dejure census and defacto census. [3]
e) State the essential characteristics of the following data sources:
   i. Vital statistics system; [2]
   ii. Population register; and [2]
   iii. Census. [4]

Question 2 (COMPULSORY) **[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]

ANSWER EITHER

Question 3 **[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]

OR

Question 4 **[25 marks]**

a. Distinguish between the following concepts:
   i. Age heaping and age shifting; [2]
   ii. Fecundity and fertility [2]
b. Explain four problems associated with measuring migration. [12]
c. Give a precise brief discussion on the following current mortality differentials in developing countries:
   i. Occupation; [3]
   ii. Rural-urban residence; and [3]
   iii. Education. [3]