**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMMUNITY DEVELOPMENT AND PUBLIC HEALTH**

**3RD YEAR 2ND SEMESTER 2016/2017 ACADEMIC YEAR**

**KISUMU CAMPUS**

**COURSE CODE:** HDC 3323

**COURSE TITLE:** DEMOGRAPHY AND HEALTH

**EXAM VENUE:**                           **STREAM: (Dip. Comm Health & Dev)**

**DATE:**                          **EXAM SESSION:**

**TIME:**

<u>**Instructions:**</u>

1. **Answer all the questions in Section A and ANY other 2 questions in Section B.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A: Answer ALL questions in this section (30 marks)**

1. Differentiate between defacto and dejure enumeration methods. (2 marks)
2. Define deaths as used in demography and further differentiate fetal death from a stillbirth.
(3 marks)
3. State and explain the two main types of errors observed in sample surveys. (4 marks)
4. Distinguish between a cohort measure and a period measure (2 mark)
5. State and explain the two major types of populations. (4 marks)
6. Give two advantages and two disadvantages of Multi-round surveys (4 marks)
7. Define dependency ratio and compare the dependecy between developed and developing
countries. (3 marks)
8. Differentiate a ratio from a rate (2 marks)
9. State the demographic balancing equation and explain its components (3 marks)
10. Define Gross Reproduction Rate (GRR) and explain its application (3 marks)

**SECTION B: Answer any 2 Questions in this section (20 marks each)**

1.
   a. Discuss the effects of migration on age structure (5 marks)
   b. Given the following extract from a life table

| $x$ | $l_x$ | $d_x$ | $p_x$ | $q_x$ |
|-----|-------|-------|-------|-------|
| 0 | 10,000 | - | - | - |
| 1 | 9,700 | - | - | 0.02 |
| 2 | - | - | 0.98 | - |
| 3 | - | 232 | - | - |
| 4 | - | - | - | 0.026 |
| 5 | - | - | - | - |

   i.     Find the expected number of survivors to age 5 (5 marks)
   ii.    Calculate the probability that a life age 1 will die within two years
(5 marks)
   iii.   Find the five (5) - year temporary curtate life expectancy of (0), i.e. $e_{0:5}$
(5 marks)

2.
   a.     Briefly explain the two (2) approaches to standardization (4 marks)
   b.     Given the following table showing disease incidence startified by age

| Age | CANADA | | | IMMIGRANTS | | |
|---|---|---|---|---|---|---|
| | Male pop. (thousands) | Cases | Incidence rate/1000 | Male pop. (thousands) | Cases | Incidence rate/1000 |
| 0-4 | 1900 | 1406 | 0.74 | 14 | 13 | 0.93 |
| 5-14 | 3100 | 186 | 0.06 | 22 | 2 | 0.09 |
| 15-44 | 9400 | 1786 | 0.19 | 105 | 29 | 0.28 |
| 45-64 | 4900 | 7350 | 1.50 | 25 | 42 | 1.68 |
| 65+ | 2000 | 9000 | 4.50 | 9 | 48 | 5.33 |
| Total | 21300 | 19728 | CR=0.93 | 175 | 134 | CR=0.77 |

Note: CR = Crude Rate per 1000

Calculate the "Rate Ratios" among the immigrants using both methods and comare them

(16 marks)

3. Describe the effects of population growth on environment          (20 marks)

4. In April 2015, a survey was conducted in Kisumu township. It revealed a total population of 389,000 (196,500 males and 192500 females). Total number of children born alive during the previous year was 16,400. The survey has also recorded a total of 5835 deaths (3200 males and 2635 females) during the same year. The survey also identified the following deaths among the population.
   - Children < 1 month = 370
   - Children 1 month - 11 months = 1100
   - Children 1- 4 years = 1865
   - Death of mothers during pregnancy and child birth = 130

Based on the above data, calculate the following measures of fertility and mortality.
   a.) Crude Birth Rate                                              (2 marks)
   b.) Crude Death Rate                                             (2 marks)
   c.) Infant Mortality Rate                                        (3 marks)
   d.) Neonatal Mortality Rate                                      (3 marks)
   e.) Under 5 Mortality Rate                                       (3 marks)
   f.) Sex Ratio                                                    (2 mark)
   g.) Maternal Mortality Rate                                      (3 marks)
   h.) Sex specific Mortality Rate for female                       (2 marks)