

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY  
SCHOOL OF HEALTH SCIENCES

MPH

END SEMESTER EXAMINATION

HES 5112: DEMOGRAPHY AND HEALTH

August 2013

TIME ALLOWED: 2 hours 30 minutes.

Note: Answer question one and any other three questions

QUESTION 1 (COMPULSORY)

- a) In demography, are “Late Fetal Deaths” counted in terms of birth and death events? Briefly, explain your answer. **(3 marks)**
- b) State the most commonly used definition of maternal mortality. **(3 marks)**
- c) Distinguish between Maternal Mortality **Ratio** and **Rate**. **(4 marks)**
- d) Calculate the maternal mortality *ratio* and *rate* for Egypt in (1990), based on the following data: Egypt, 1990 Births = 4,158,212; Maternal deaths = 343; Women aged 15-49 years = 65,624. **(6 marks)**
- e) List two methods used to derive the probability of dying “q” from mortality rates. **(2 marks)**
- f) List two socio-economic characteristics of a population that may be associated with differential mortality. **(2 marks)**

QUESTION 2

- a) Define “Crude Marriage Rate” **(3 marks)**
- b) Define “General Marriage Rate” **(3 marks)**
- c) Calculate the **general marriage rate for women** and compare it to the **general marriage rate** for Mexico in (1988) based on the following data: Mexico, 1988 Number of marriages = 951 236; Total population 15+ years = 92 852 000; Total female population 15+years = 46 706 000 **(6 marks)**
- d) Define “General Divorce Rate” **(3 marks)**

### QUESTION 3

The table below shows data from Poland in 1984.

Age group	Births	Women (15 – 49yrs)	ASFR
15 – 19	43,807	1,230,396	
20 – 24	257,872	1,390,077	
25 – 29	236,088	1,653,188	
30 – 34	115,566	1,608,925	
35 – 39	38,450	1,241,967	
40 – 44	6,627	941,963	
45 – 49	1,600	630,000	

- Briefly, explain the meaning of “Fertility” in demography. **(2 marks)**
- Use the tabulated data to calculate the General Fertility Rate (GFR) per 1,000 women aged 15 – 49. **(2 marks)**
- Use the tabulated data to calculate the Age-Specific Fertility Rate (ASFR) per 1,000 women for each of the age groups and populate the ASFR column. **(14 marks)**
- Use the all the data in the table to calculate the Total Fertility Rate (TFR) per 1,000 women in 1984. **(2 marks)**

### QUESTION 4

- Briefly, explain the major purpose of standardization of population rates. **(3 marks)**
- Briefly, distinguish between the two techniques used for standardization. **(3 marks)**
- Which technique is preferable when possible? **(2 marks)**
- Calculate **directly** and **indirectly** standardized Crude Death Rates (CDRs) for populations one and two by using the standard population (use the table given below and show your work): **(12 marks)**

Age Group (i)	Population 1		Population 2		Standard Population	
	Rate (r <sub>i</sub> )	Proportion in Group (n <sub>i</sub> /n)	Rate (r <sub>i</sub> )	Proportion in Group (n <sub>i</sub> /n)	Rate (R <sub>i</sub> )	Proportion in Group (N <sub>i</sub> /N)
1	30	0.8	32	0.3	20	0.6
2	15	0.2	16	0.7	35	0.4

CDR: Pop 1;  $30 \cdot 0.8 + 15 \cdot 0.2 = 27$ ,  
Stand-Pop;  $20 \cdot 0.6 + 35 \cdot 0.4 = 26$

Pop 2;  $32 \cdot 0.3 + 16 \cdot 0.7 = 20.8$ ,

### QUESTION 5

- a) Briefly, distinguish between the following:
  - i. In-migrant and Immigrant **(3 marks)**
  - ii. Out-migrant and Emigrant **(3 marks)**
  - iii. Residual method and Cohort-Component method **(3 marks)**
- b) List three techniques of estimating net migration using the Cohort-Component method. **(3 marks)**
- c) Calculate the Crude Net Migration Rate per 1,000 for Tanzania in 1987 based on the following data: Long-term immigrants = 3,925; Long-term emigrants = 5,330; Total population = 8,640,000. **(5 marks)**
- d) List the two broad types of migration. **(3 marks)**

### QUESTION 6

- a) List two of the most important sources of country level demographic data. **(2 marks)**
- b) Briefly, distinguish between the following:
  - a. *De jure* and *De facto* census **(4 marks)**
  - b. Rate and Ratio **(4 marks)**
- c) Infant mortality may be defined as the number of infant deaths in a given year divided by the number of live births in that given year. Is it a true rate as defined? Briefly, explain your answer. **(4 marks)**
- d) Given the following births and infant deaths recorded in Korea in 1967 and 1968:

Year	Birth Cohort	Age (yrs)	Deaths	Births
1967	1967	0	2,893	142,471
1968	1967	0	481	--
1968	1968	0	2,603	138,214
1969	1968	0	302	--

- i. Calculate the correct conventional infant mortality rate per 1,000 for 1968 (show your work). **(3 marks)**
- ii. Calculate the correct cohort infant mortality rate per 1,000 under age 1 for 1968 (show your work). **(3 marks)**