JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF HEALTH SCIENCES

BSc
END OF SEMESTER EXAMS
HCD 3323: DEMOGRAPHY AND HEALTH

August 2013

SECTION A

Please, answer ALL questions (3 Marks each).

1. List the <u>four</u> major vital events.
2. List the <u>three</u> major determinants of a population's size and structure.
3. Briefly, state the demographic balancing equation and describe its components.
4. Calculate the "Child:Women" ratio in Uganda in (1991): Uganda, 1991 Number of women aged (15-49yrs) = 3,771,496; Number of children aged (under 5yrs) = 3,153,122.
5. Briefly, explain what a "rate" is, and what a "proportion" is?
6. Define "General Fertility Rate".
7. If twenty students took a demography quiz, and 15 of them passed. Calculate the proportion that failed, provide your answer as a percentage.
8. Define Crude Death Rate (CDR) of a population, and mention the characteristic of the population that has the most influence on CDR.
9. Briefly, distinguish between an internal and external migrant.
10. "ICD-10" is the World Health Organization standard currently in use for cause of death certification, spell out what the acronym stands for.

SECTION B
Answer any <u>TWO</u> questions from this section (20 marks each)

1. Define "Fertility" in demography? **(4 marks)**

    a. List three sources of data that can be used to calculate fertility in a country. **(4 marks)**

    b. How can the Crude Birth Rate (CBR) be measured? **(4 marks)**

    c. Given the data in the table below, calculate Total Fertility Rate (TFR) = ? **(8 marks)**

Age of women	Age Specific Fertility Rates (ASFR)
15 – 19	179.7
20 – 24	329.5
25 – 29	299.9
30 – 34	259.8
35 – 39	182.7
40 – 44	78.0
45 - 49	41.7

2. Using the abridged life table for England and Wales females 1985 (below), calculate the following:

    a. $_{30}q_{20}$ [   ] **(5 marks)**

    b. The under-5 mortality rate.   [   ] **(5 marks)**

    c. Spell out the meaning of the term "DALYs" and briefly explain what it means **(5 marks)**.

    d. Define "Age Specific Mortality Rate". **(5 marks)**

Abridged life table: England and Wales, females, 1985

X	N	$_nq_x$	$_np_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	0.008252	0.991748	100 000	825	99 258	7 756 261	77.563
1	4	0.001630	0.998370	99 175	162	396 311	7 657 003	77.207
5	5	0.000905	0.999095	99 013	89	494 842	7 260 692	73.331
10	5	0.000935	0.999065	98 924	93	494 388	6 765 850	68.394
15	5	0.001409	0.998591	98 831	139	493 808	6 271 462	63.456
20	5	0.001534	0.998466	98 692	152	493 080	5 777 654	58.542
25	5	0.001818	0.998182	98 540	179	492 253	5 284 574	53.629
30	5	0.002826	0.997174	98 361	278	491 110	4 792 321	48.722
35	5	0.004410	0.995590	98 083	432	489 335	4 301 211	43 853
40	5	0.007199	0.992801	97 651	693	486 523	3 811 876	39.036
45	5	0.012348	0.987652	96 958	1 197	481 798	3 325 353	34.297
50	5	0.020831	0.979169	95 761	2 005	473 793	2 843 555	29.694
55	5	0.035455	0.964545	93 756	3 324	460 470	2 369 762	25.276
60	5	0.058507	0.941493	90 432	5 291	438 933	1 909 292	21.113
65	5	0.087310	0.912690	85 141	7 434	407 120	1 470 359	17.270
70	5	0.139189	0.860811	77 707	10 816	361 495	1 063 239	13.683
75	5	0.220993	0.779007	66 891	14 782	297 500	701 744	10.492
80	5	0.352367	0.647633	52 109	18 362	214 640	404 244	7.758
85+		1.000000	0.000000	33 747	33 747	189 604	189 604	5.618

3. Briefly, explain why Migration is difficult to measure.

    a. List the two major types of migration. **(4 marks)**

    b. Briefly, explain how the migration of young adults (20 – 50yrs old) impacts on the age structure of both the sending and receiving populations. **(4 marks)**

    c. Briefly, explain two effects of sex selective migration on the sex structure of the population. **(4 marks)**

    d. Briefly, explain the effects of young adult migration on vital event rates, i.e. CDR and CBR. **(4 marks)**

    e. List the two methods used for estimating net migration. **(4 marks)**

4. List the <u>two</u> approaches to standardization. **(4 marks)**

Disease incidence stratified by age:

AGE	CANADA			IMMIGRANTS		
	Male pop. (thousands)	Cases	Incidence rate/1,000	Male pop. (thousands)	Cases	Incidence rate/1,000
0 – 4	1,900	1,406	0.74	14	13	0.93
5 – 14	3,100	186	0.06	22	2	0.09
15 – 44	9,400	1,786	0.19	105	29	0.28
45 – 64	4,900	7,350	1.50	25	42	1.68
65+	2,000	9,000	4.50	9	48	5.33
Total	21,300	19,728	CR = 0.93	175	134	CR = 0.77

Not: CR = Crude Rate per thousand

Calculate the "Rate Ratios" among the immigrants using <u>both methods</u> and compare them. **(16 marks)**