UNIVERSITY OF SWAZILAND

RE-SIT EXAMINATION

ACADEMIC YEAR: 2017/18

TITLE OF PAPER: DEMOGRAPHIC METHODS I

COURSE NUMBER: DEM 211/DEM201

TIME ALLOWED: 2 HOURS

INSTRUCTIONS: ANSWER ANY THREE QUESTIONS. ALL QUESTIONS ARE WORTH 30 MARKS EACH.

REQUIREMENTS: CALCULATOR

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

Question 1

a) Why is it necessary to standardize rates? (2)

b) The standardized mortality ratio for the town of Burnley in England was 1.23 when the population of England as a whole was used as the standard. What does this tell you about the mortality in Burnley relative to that in England as a whole? (5)

c) The differences in crude death rates for two populations are due to differences that result from two components. Describe the two components and present the formula used to obtain the contribution of each component. (6)

d) The data in Table 1 refers to the male populations of Argentina and Colombia in the mid 1980s.
   a. Calculate the crude death rates for each country.(4)
   b. Using the population of Argentina as the standard, calculate the directly standardized death rate for Colombia.(10)
   c. Comment on your results. (3)

Table 1: Population (in thousands) and Deaths by age, Argentina and Colombia, mid 1980s

Age group	Argentina Population (thousands)	Deaths	Colombia Population (thousands)	Deaths
0-4	1767	11832	1857	5179
5-14	3062	1390	3372	2300
15-24	2430	2816	3123	6646
25-44	4101	9690	3724	12702
45-64	2755	36581	1587	15441
65+	1129	70138	478	27034

Question 2

a) Differentiate between the following terms:
   i. Death and Foetal death (4 marks)
   ii. Incidence and Prevalence(4 marks)
   iii. Endogenoeous and exogeneous causes of death (4)

b) Given the following births and infant deaths recorded in Country X, calculate:
   I. The conventional infant mortality rate for 1988. (3)
   II. The adjusted infant mortality rate for 1988 using the cohort method (3)
   III. The adjusted infant mortality rate for 1988 using the additive method (3)

Year	Birth Cohort	Age (yrs)	Deaths	Births
1987	1987	0	2 893	142 471
1988	1987	0	481	-------
1988	1988	0	2 603	138 214
1989	1988	0	302	--------

c) If you only have census data on the age/sex structure of the population and total counts of births and deaths, how may you improve the index? (3)

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e) In what way is the General Fertility Rate (GFR) a better measure of fertility than the CBR? (3)

Question 3

a) Describe the sources of information on marriage. (5)

b) Why is it important to differentiate first marriages from remarriages? (3)

c) Calculate the singulate mean age at marriage for males and females in Mali using the data in Table 3.(8)

a. Table 3: Proportion single by age and sex, Mali, 1995-96

Age	Males	Females
15-19	99.6	98.6
20-24	89.1	77.7
5-29	58.6	42.9
30-34	33.2	21.7
35-39	20.8	12.5
40-44	13.7	8.4
45-49	10.9	6.5
50-54	10.0	7.0

d) Populations that have a low mean age at marriage tend to have relatively higher levels of fertility. Briefly discuss this statement.(5)

e) What is meant by population projection? (2)

f) You are given a female population (in 5 year age groups), a female life table, and age specific fertility rates for a population in 2010. List the steps you would need to take and the assumptions you would need to make to predict the number of females under age 5 in 2015? (7)

Question 4

a) Define a Parity Progression Ratio. What data are required to compute the PPRs? (3)

b) The number of females in mid-1986 of a hypothetical population and the number of male births occurring to them throughout the year are given in the table below. The sex ratio at birth is 103.

Age Group	No. of Women	Male births	Age Specific Fertility Rate
15-19	5400	211	0.077
20-24	5250	666	(i)
25-29	4800	560	(ii)
30-34	4680	427	0.180
35-39	3940	206	0.103
40-44	3760	162	0.085
45-49	2120	43	0.040

c) Calculate the values of the missing age specific fertility rates and interpret them. (6)

d) Discuss the age pattern of fertility for this population. Make sure to include an illustration. (8)

e) Calculate:
   The total fertility rate and interpret it. (4)
   The gross reproduction rate using the indirect method and interpret. (3)

f) What additional information is needed to compute the net reproduction rate? (3)

g) Compute the mean age at childbearing. (3)