University of Colombo
Faculty of Arts
Bachelor of Arts Degree Examination (Special) - Second Year
Semester End Examination- Semester II - 2018/2019
DMG 2223: Demographic Analysis

Answer three (03) questions only
Calculators can be used **Time: Two (02) hours**
This paper contains five (05) questions and four (04) pages

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01. a) By using the data given in the table for country X, calculate the followings:

Age group	Female Population (000)	Male Population (000)
0-4	96,456	89,564
5-9	189,562	170,569
10-14	154,782	200,132
15-19	550,573	423,582
20-24	221,026	321,456
25-29	73,150	82145
39-34	32,184	45,321
35-39	20,396	25,789
40-44	15,826	14,655
45-49	16,759	18,654
50-54	17,600	18,798
55-59	16,964	14,654
60+	86,260	98,732

i. Overall Sex Ratio
ii. Old Age Dependency Ratio
iii. Percentage of Female Population
iv. Child-Woman ratio
v. Aging Index

(10 Marks)

b) Discuss how the Lexis diagram can be used to illustrate the relationship between period and cohort data by citing examples.

(05 Marks)

c) Briefly explain the importance of using the mid-year population in the calculation of population indices.

(05 Marks)

02.a) Complete the following life table constructed for 2000-2002 for females of country'X'.

Age	${}_nq_x$	l_x	${}_nd_x$	${}_nL_x$	T_x	e_x
30	0.0114	96012		477323	4302942	44.82
35	0.0164					
40	0.0114					
45	0.0228					
50	0.0340					
55	0.0474					
60	0.0827					
65	0.1189					
70+		67079	67079	810133	810133	

(10 Marks)

b) Use the life table you completed above and calculate the following,

i. Proportion of females surviving to the the age of 60 years by those who are currently at the age of 30 years.

(03 Marks)

ii. Number of females expected to die at the age of 65 years by a group of 3000 females who are now at the age of 40 years.

(03 Marks)

iii. Total population above the age of 30 years

(02 Marks)

c) Comment on the life expectancy (e_x) values.

(02 Marks)

03.a) Some of the fertility measurses of country 'A' are given below.

Total Fertility Rate (TFR) = 3.539

Gross Reproduction Rate (GRR) = 1.724

Net Reprodcuction Rate (NRR) = 1.668

Briefly interpret the above fertility measures.

(06 Marks)

b) Discuss the importance of Parity Progression Ratios in Fertility Studies.

(06 Marks)

c) Using the data of the table given below, calculate the Singulate Mean Age at Marriage for the country 'Y'

Age Group	Female Population	Single Female Population
Less than15	3,456,230	3,442,010
15-19	756,897	590,321
20-24	876,345	345,765
25-29	543,768	112,567
30-34	435,789	45,876
35-39	345,786	34,654
40-44	290,764	25,675
45-49	216,790	16,491
50-54	196,345	9,760

(06 Marks)

d) Interpret your results.

(02 Marks)

04. a) Using the data given below for the country 'X', calculate the net migration for the age group 15 -39 years for the period of 2005-2015 using the Foreward Survival Ratio Method.

Age Group 2005	Population 2005	Age Group 2015	Foreward Survival Ratio (Ten Years)	Population 2015
10-14	85,460	15-19	0.99333	158,852
15-19	98,453	20-24	0.99645	190,457
20-24	135,871	24-29	0.99160	231,654
24-29	112,459	30-34	0.98962	151,564
30-34	99,561	35-39	0.98631	102,985
35-39	85,236	40+	0.98070	65,821

(10 Marks)

b) Draw a diagram to indicate the impact of the net migration in 2015 for the age group 15-19 in year 2005.

(05 Marks)

c) Explain how net migration can be calculated using the Vital Statistics Method/Residual Method using data of your choice.

(05 Marks)

5. a) Crude Death Rate is not a suitable measure to compare mortality between countries. Brie explain.

(06 M

b) In the year 2010, Heart Disease Specific Death Rate was reported as 35 death per 100,00 region and 90 deaths were reported due to heart diseases. In the same year, Crude Death was reported as 7.2 and 49.3 % of the deaths reported were female deaths. Sex Ratio population was reported as 113.9. Using the data given for the year 2010, calculate the follo measures for the region.

i. Percentage of Heart Disease Specific Deaths

ii. Crude Death Rate (Males)

iii. Crude Death Rate (Females)

(08 M

c) Using the data given below for the country 'Z',

i. Calculate the Total Population
ii. Calculate the proportion of males and females in each age group.
iii. By using data given in the following table draw a draft of population py to show age-sex structure of the population in the country 'Z'.

Age Group	Female Population (000)	Male Population (000)
0-9	4,770	4,512
10-19	3,603	3,174
20-29	3,266	2,294
30-39	2,136	2,069
40-49	1,150	1,106
50-59	1,062	1,006
60-69	711	773
70+	272	441

(06 M