University of Colombo – Sri Lanka
Faculty of Arts
Bachelor of Arts Degree Examination (Special) – Fourth Year
Semester End Examination – Semester I – 2021/2022
DMG 4166: Advanced Demographic Analysis

Answer three (03) questions only

Time: Two (02) hours

Calculators can be used

This paper contains five (05) questions and four (04) pages

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1. (a). Use the Table 1 below and calculate first marriage rates

(05 marks)

Table 1: Number of first marriages and mid-year population of spinsters

Age group	Number of first marriages	Mid-year population of spinsters
15-19	45,636	639,812
20-24	70,058	224,726
25-29	12,337	95,738
30-34	2,587	54,940
35-39	1,028	48,355
40-44	982	46,073
45-49	483	40,227

(b). Use the Table 1 above and calculate first marriage probability (05 marks)

(c). Use the calculations done in 1. (a) and 1. (b), calculate average age at marriage

(05 marks)

(d). What is meant by "marriage market problem"? Explain with examples (05 marks)

2. (a). What is meant by Indirect Standardization of Fertility? Explain (03 marks)

(b). Explain how you would use Coale's Index of Marital Fertility to determine the onset of the fertility transition in a country.

(05 marks)

(c). Use the data given in Table 2 to compute the following:

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(i). Index of General Fertility Rate (03 marks)

(ii). Index of Legitimate Fertility Rate (03 marks)

(iii). Index of Illegitimate Fertility Rate (03 marks)

(iv). Index of Proportions Married (03 marks)

Table 2: Number of births and female population

Female Population	
Married	28,384,572
Not Married	10,162,554
Births	
Legitimate	2,035,550
Illegitimate	124,250

3. (a). What is meant by Parity Progression Ratios? Explain. (05 marks)

(b). Use the data in Table 3 and calculate the Parity Progression Ratios and Interpret your results.

(04 marks)

Table 3: Number of women aged 45-49 years by children ever borne (CEB)

Children Ever Borne (N)	Number of Women aged 45-49
0	14335
1	25548
2	28368
3	32217
4	38889
5	43938
6	47522
7	48401
8	45987
9	40112
10+	79994

(c). Use the data given in Table 4 and compute the following:

    (i). Mean Parity by Age of Mother   (04 marks)

    (ii). Age-Specific Fertility Rates   (05 marks)

    (iii). Total Fertility Rate   (02 marks)

Table 4: Number of Women, Children ever born, and Births in the past year

Age group	Number of Women	Children Ever Born	Births in past year
15-9	2,102	371	178
20-24	2,364	2,426	442
25-29	2,236	3,730	386
30-34	1,800	4,842	281
35-39	1,414	4,839	126
40-44	1,145	4,925	35
45-49	1,089	4,732	10

4. (a). Explain why it is important to study infant mortality from health policy perspective? Explain.

                                                 (04 marks)

(b). Use the data given in Table 5 and calculate the following:

Table 5: Number of births and deaths by calendar year

Year	Birth Cohort	Age	Deaths	Births
2012	2012	0	2,998	134,372
2013	2012	0	501	--
2013	2013	0	2,708	138,412

(i). Place the data in a Lexis Diagram   (02 marks)

(ii). The true probability of dying between exact ages 0 and 1 for birth cohort 2012

                                                 (03 marks)

(iii) Four measures to show the probabilities of dying during the year 2013

                                                 (08 marks)

(iv) Interpret your results   (03 marks)

5. Write short notes on the following:

    (a). Tempo and Quantum effects of Total Fertility Rate   (05 marks)

    (b). Age pattern of fertility and the fertility transition   (05 marks)

    (c). Time and space in migration analysis   (05 marks)

    (d). Completed Family Size as a Cohort measure of fertility   (05 marks)