



SD Gupta School of Public Health

Master of Public Health (Implementation Science)

Cohort-01 (2022-2024)

First Year, Semester 1, End Term Examinations, December 2022

MPHIS-603.101- Demography and Population Studies

Time - 3 Hour

MM-50

This question paper contains 3 printed pages.

Section A

Q1. Choose the most appropriate option for the following questions (i-x) : (2x10=20)

(i). Total Fertility Rate (TFR) is defined as:

- a) Total number of children to a woman during her life time.
- b) Total number of females to a woman during her life time.
- c) Any of the above may be true.
- d) None of the above.

(ii). Typically, age-specific fertility rate is highest in:

- a) Age group 15-19
- b) Age group 25-34
- c) Age group 20-29
- d) Age group 30-34

(iii). Demographic dividend is observed for any country if

- a) Population growth rate of working age group is equal and more than overall population growth rate of the country
- b) Overall Population growth rate is equal and more than the working age group of the country
- c) Country is developing with poor development indicators
- d) Country with high development indicators

(iv). Which indicators take into consideration both fertility and mortality factors:

- a) Gross reproduction rate
- b) Net migration rate
- c) Net reproduction rate
- d) Total fertility rate

(v). Most important migration stream in terms of volume in order is :

- a) Rural – rural stream
- b) Rural – urban stream
- c) Urban – urban stream
- d) Urban – rural stream

- (vi). The population growth rates are highest during
- Ist stage of demographic transition
 - IInd stage of demographic transition
 - IIIrd stage of demographic transition
 - IVth stage of demographic transition
- (vii). The reversal in the trends of mortality decline as observed with advent of HIV/AIDS epidemic in Sub-Saharan Africa suggests that Sub-Saharan Africa has
- Slipped back into stage I of demographic transition
 - Is still in Stage II of demographic transition, as crude birth rate is still higher than crude death rate
 - Is in Stage III of demographic transition, as population growth rate has started slowing down as is generally observed in this stage
 - None of the above
- (viii). The classic Demographic Transition
- Only considers population growth due to natural increase
 - Also takes into account the potential growth due to migration and urbanization
 - Only takes into account the birth rates
 - Only takes into account the death rates
- (ix). Young Population' implies
- Majority of the population die young
 - Large proportion of the population is in young age groups
 - Has low dependency ratios
 - Has a higher median age
- (x). Which of following is not true for population pyramids
- Each horizontal bar of the pyramid represents the proportion of male and female in a particular age group out of total population
 - Each horizontal bar of the pyramid represents the proportion of male of the total male population and proportion of female of the total female population in a particular age group
 - Both absolute numbers or proportions can be used to plot the female and male population
 - Pyramids can be used to study the effect of wars etc. on the population

Section B

(2x5=10)

Write short notes on/Answer any two of the following. Each question carries 5 marks.

Q2. Explain the demographic dividend and Demographic window of opportunity

Q3. Explain population balancing equation

Q4. Factors affecting fertility

Q5. Describe population age pyramid.

Section C

(2x10=20)

Answer the following questions. Each question carries 10 marks.

Q6. Calculate the missing value (for shaded areas) in different columns of the following life table:

Age group		m_x	q_x	l_x	d_x	L_x	T_x	e_x
0	1	0.01570	0.01553	100,000	1,553		7,334,654	73.35
1	4	0.00090	0.00576	98,447	567	392,654	7,235,742	
5	9	0.00040	0.00200	97,880	196	488,911	6,843,087	69.91
10	14	0.00035	0.00176	97,684	172	487,992	6,354,176	65.05
15	19	0.00075		97,512	365	486,648	5,866,185	60.16
20	24	0.00110	0.00548	97,147	533	484,404	5,379,536	55.38
25	29	0.00120	0.00598	96,614	578	481,627	4,895,132	50.67
30	34	0.00263	0.01306	96,036		477,045	4,413,505	45.96
35	39	0.00330	0.01636	94,782	1,551	470,031	3,936,460	41.53
40	44	0.00230	0.01143	93,231	1,066	463,488	3,466,429	37.18
45	49	0.00460	0.02274		2,096		3,002,941	32.58
50	54	0.00690	0.03391	90,069	3,055	442,708	2,547,357	28.28
55	59	0.00970	0.04735	87,014	4,120	424,771	2,104,648	24.19
60	64	0.01720	0.08245	82,894	6,835	397,383	1,679,878	20.27
65	69	0.02520	0.11853	76,059	9,015	357,756	1,282,495	16.86
70	+	0.07250	1.00000	67,044	67,044	924,739		13.79

Q7. Calculate the following measures of fertility and reproduction for the selected area of Bangladesh by using the data given below. Interpret the results.

- (a) CBR and GFR
- (b) TFR
- (c) GRR
- (d) NRR

Age	No. of Women	Births	Female (L_x/l_0)
15-19	597100	3403	3.63207
20-24	557335	46760	3.51543
25-29	501563	68062	3.38115
30-34	431157	41175	3.23525
35-39	396680	19953	3.07872
40-44	326346	3916	2.91388
45-49	279230	1815	2.73969

Mid-Year population: 12526183

Sex ratio at birth 105 (M/F)