

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – STATISTICS

DISCIPLINE SPECIFIC ELECTIVE – II
DEMOGRAPHIC METHODS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

1. Measuring number of people who die is _____
 - a) Infant rate
 - b) Migration rate
 - c) Mortality rate
 - d) Fertility rate
2. _____ is the study of vital events such as birth, death, marriage, etc.
 - a) Population
 - b) Vital statistics
 - c) Birth rates
 - d) Fertility
3. The Net Reproduction Rate (NRR) = 1 implies exact replacement, then what NRR < 1 implies?
 - a) Not replacing itself and a positive growth rate in short run.
 - b) Not replacing itself and a negative growth rate in short run.
 - c) Not replacing itself and a positive rate in long-run.
 - d) Not replacing itself and a negative growth in long run.
4. Period birth rate and cohort birth rate may exhibit large differences under which of the following conditions?
 - a) When most couples plan their fertility.
 - b) When the mean age of marriage is increasing.
 - c) When the mean age at marriage is decreasing.
 - d) None of the above.
5. When a population of GRR is equal to NRR,
 - a) Population growth rate is zero
 - b) No mortality
 - c) Population is at the replacement level
 - d) Population is closed to migration
6. Which one of the following is not true in case of stable population theory?
 - a) $NRR = e^r T$
 - b) $b = d = 1/e_x^0$ (if $r = 0$)
 - c) $c(a, t) = c(a)$
 - d) $NRR = GRR$
7. L_x column of life table refers to
 - a) Probability of death
 - b) Number of persons living at exact age 'x'
 - c) Number of person years lived
 - d) Total life time after age x
8. $n^p x$ Column of life table refers to
 - a) Survival function
 - b) Probability of death
 - c) Number of persons living between ages a and a + 1
 - d) Expectation of life at birth
9. Which one of the following methods of population projection requires age specific fertility rates?
 - a) Gompertz Method
 - b) Component Method
 - c) Exponential Population Growth Method
 - d) Balancing Equation Method

Cont...

- 10 The three methods of population estimate are _____ post census estimate and Future estimate.
 a) Long time estimate
 b) Inter census estimate
 c) Current estimate
 d) Fixed estimate

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks ($5 \times 7 = 35$)

- 11 a Explain coverage and content errors in demographic data.
 OR
 b Discuss the uses of vital statistics.
- 12 a Explain crude birth rate and specific rate fertility.
 OR
 b Compute the Standardized death rates for the following two population A and B by taking the population A as its standard.

Age (Years)	Population A		Population B	
	Population	Deaths	Population	Deaths
0-9	10000	150	15000	200
10-19	8000	80	12000	150
20-39	15000	40	20000	75
40-59	13000	55	12000	45
60-79	6000	110	8000	175
80 & Above	2000	150	5000	250

- 13 a Explain infant mortality rate and Standardized death rates.
 OR
 b From the data given below calculate the NRR and GRR.

Age group (In years)	Female Population	Female Births	Survival rates
15-19	10000	200	0.91
20-24	9000	360	0.90
25-29	8000	480	0.89
30-34	7000	280	0.88
35-39	6000	180	0.87
40-44	5000	100	0.86
45-49	4000	40	0.85

- 14 a Derive the relationship between the components of life tables and also explain the uses of Life tables.
 OR
 b Discuss about the concept of life table along with its assumptions.
- 15 a Find the Intercensal and postcensal estimates using mathematical method.
 OR
 b Discuss about. i) Population Projection ii) Need for Population Projection.

SECTION - C (30 Marks)Answer any **THREE** Questions**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Write the different measures of calculating fertility rates and ratio?
- 17 Briefly explain gross and net reproduction rates.
- 18 Derive Markham's Graduation formula for mortality.
- 19 Evaluate the missing values using the given data and compute the Life Table.

x	$l(x)$	$d(x)$	$p(x)$	$q(x)$	$L(x)$	$T(x)$	$e^0(x)$
83	3560	-	-	0.16	-	-	-
84	-	508	-	0.17	-	11975	-

- 20 Elaborate the methods of population estimates and its projection.

Z-Z-Z

END