

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2024
(Sixth Semester)

Branch – STATISTICS

DISCIPLINE SPECIFIC ELECTIVE – II : DEMOGRAPHIC METHODS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. Indicate how does demographic data contribute to public health policies?
(i) By focusing on individual lifestyles (ii) By promoting cultural awareness
(iii) By developing targeted health interventions (iv) By analyzing economic factors
2. What does the Gross Reproduction Rate (GRR) represent?
(i) The total number of births per woman
(ii) The number of births per 1,000 women of childbearing age
(iii) The average number of daughters a woman will have in her lifetime
(iv) The number of births adjusted for population size
3. Which of the following mortality measures considers deaths in a specific age group as a proportion of the population in that age group?
(i) Crude Death Rate (ii) Age-Specific Death Rate
(iii) Infant Mortality Rate (iv) Maternal Mortality Ratio
4. What is the central concept behind the " q_x " value in a life table?
(i) Probability of dying between ages x and $x + n$ (ii) Number of deaths at age x
(iii) Number of births at age x (iv) Number of survivors at age x
5. What is the primary purpose of population projection?
(i) Estimating current population size (ii) Predicting future population trends
(iii) Analyzing past demographic patterns (iv) Assessing current migration rates

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a) How does demographic information contribute to the field of developmental psychology?
OR
b) State the uses of vital statistics in public administration.
- 7 a) Describe the socio-economic factor that impact fertility.
OR
b) Explain rates and ratios of vital events.
- 8 a) Describe the Infant Mortality Rate (IMR) and discuss its significance in assessing the health of a population.
OR
b) Outline about Age Specific Death Rate.
- 9 a) Explain how life tables are utilized in public health to assess the health and well-being of populations.
OR

Cont...

- b) Explain the assumptions and description of life tables.
- 10 a) Explain the concept of the "arithmetic progression" method in population projection.
OR
b) Explain how do population projections contribute to economic planning.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a) Highlight the methods of obtaining vital statistics.
OR
b) Outline the uses of demography in Sociology and Economics.
- 12 a) Explain the Crude Birth Rate and discuss with example.
OR
b) Calculate and analyse the general fertility rate, total fertility rate and the gross reproduction rate from the following data, assuming that for every 100 girls 106 boys are born.

Age of women:	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Number of women:	212,619	198,732	162,800	145,362	128,109	106,211	86,753
Age SFR(per 1000):	98.0	169.6	158.2	139.7	98.6	42.8	16.9

- 13 a) Discuss the concept of Infant Mortality Rate.
OR
b) Compute the crude and standardized death rates of the two populations A and B, regarding A as standard population, from the data given below.

Age-group	Population A		Population B	
	Population	Deaths	Population	Deaths
Under 10	20,000	600	12,000	372
10-20	12,000	240	30,000	660
20-40	50,000	1250	62,000	1612
40-60	30,000	1050	15,000	525
Above 60	10,000	500	3,000	180

- 14 a) Highlight the uses of life tables.
OR
b) Given the following table for l_x , the number of rabbits living at age x , complete the life table for rabbits.

$x:$	0	1	2	3	4	5	6
$l_x:$	100	90	80	75	60	30	0

X, Y, Z are three rabbits of age 1, 2 and 3 years respectively. Examine the probability that:

- (i) At least one of them will be alive for one year more,
 (ii) X, Y, Z will be alive for two years' time,
 (iii) Exactly one of the three is alive in two years, and
 (iv) All will be dead in two years' time.
- 15 a) Discuss the stable and stationary population.
OR
b) Discuss the logistic curve in the context of population projection.

Z-Z-Z END