

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch -STATISTICS

MAJOR ELECTIVE COURSE - II - DEMOGRAPHIC METHODS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Population Census in India is conducted once in _____ (i) 5 years (ii) 8 years (iii) 10 years (iv) 12 years	K1	CO1
	2	Vital registration system mainly records _____ (i) Agricultural output (ii) Births and deaths (iii) Employment rate (iv) Migration survey	K2	CO1
2	3	Crude Birth Rate is calculated per _____ (i) 100 population (ii) 1000 population (iii) 10,000 population (iv) 100 women	K1	CO2
	4	General Fertility Rate considers women in the age group _____ (i) 10-40 (ii) 15-49 (iii) 20-60 (iv) 25-50	K2	CO2
3	5	Standardized death rate is useful when _____ (i) populations have same age structure (ii) comparing populations with different age structures (iii) measuring fertility (iv) measuring migration	K1	CO3
	6	If a country has high Infant Mortality Rate, it indicates _____ (i) better health facilities (ii) poor maternal and child health care (iii) low fertility (iv) High migration	K2	CO3
4	7	Gross Migration Rate includes _____ (i) Immigrants only (ii) Emigrants only (iii) both immigrants and emigrants (iv) births	K1	CO4
	8	Net Migration Rate becomes negative when _____ (i) Immigration > Emigration (ii) Emigration > Immigration (iii) Both equal (iv) No migration	K2	CO4
5	9	Population estimates are generally based on _____ (i) migration only (ii) fertility only (iii) mortality only (iv) births, deaths and migration	K1	CO5
	10	Exponential growth model is based on _____ (i) linear equation (ii) compound interest principle (iii) simple interest principle (iv) logistic equation	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO						
1	11.a.	Explain the various sources of demographic data. Discuss the role of Population Census and Vital Registration system in India.	K2	CO1						
		(OR)								
	11.b.	Describe how demographic data can be used in social, economic and health planning. Illustrate with suitable examples.								
2	12.a.	Explain Crude Birth Rate, General Fertility Rate and Age Specific Fertility Rate with their formulas and interpretation.	K3	CO2						
		(OR)								
	12.b.	Compute (i) GFR (ii) SFR (iii) TFR and (iv) GRR from the data given below								
		Age group of child bearing females	15-19	20-24	25-29	30-34	35-39	40-44		
No. of Women ('000)		16.0	16.4	15.8	15.2	14.8	15.0	14.5		
Total Births		260	2244	1894	1320	916	280	145		

Cont...

3	13.a.	Explain the following mortality measures: (i) Crude Death Rate (ii) Infant Mortality Rate (iii) Standardized Death Rate					K3	CO3
		(OR)						
	13.b.	Compute the crude and standardised death rates of two populations A and B, regarding A as standard population, from the table						
		Age Group (years)	Population of A	Deaths of A	Population of B	Deaths of B		
under 10		20000	600	12000	372			
10-20		12000	240	30000	660			
20-40		50000	1250	62000	1612			
	40-60	30000	1050	15000	525			
	above 60	10000	500	3000	180			
4	14.a.	Derive any two relationship between the life table functions.					K3	CO4
		(OR)						
	14.b.	Deliniate about migration. State the factors related with migration .How it affects spatial distribution?						
5	15.a.	Explain Arithmetic, Geometric and Exponential growth models of population projection. State their differences.					K2	CO5
		(OR)						
	15.b.	Explain the concept of stationary and stable populations. How do they differ?						

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO																																								
1	16.	Evaluate the role of demographic data in socio-economic and health planning. Discuss how inaccuracies in demographic data may affect national development policies.	K4	CO1																																								
2	17.	Calculate 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 <table><tr><td>Age of Women</td><td>15-19</td><td>20-24</td><td>25-29</td><td>30-34</td><td>35-39</td><td>40-44</td><td>45-49</td></tr><tr><td>No. of women</td><td>212619</td><td>198732</td><td>162800</td><td>145362</td><td>128109</td><td>106211</td><td>86753</td></tr><tr><td>Age - SFR (per 1000)</td><td>98</td><td>169.6</td><td>158.2</td><td>139.7</td><td>98.6</td><td>42.8</td><td>16.9</td></tr></table>	Age of Women	15-19	20-24	25-29	30-34	35-39	40-44	45-49	No. of women	212619	198732	162800	145362	128109	106211	86753	Age - SFR (per 1000)	98	169.6	158.2	139.7	98.6	42.8	16.9	K4	CO2																
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3	18	Estimate the standardised death rates for the two countries from the data <table><tr><td>Age Group</td><td>Death rate of A</td><td>Death rate of B</td><td>Standardised population</td></tr><tr><td>0-4</td><td>20.00</td><td>5.00</td><td>100</td></tr><tr><td>5-14</td><td>1.00</td><td>0.50</td><td>200</td></tr><tr><td>15-24</td><td>1.40</td><td>1.00</td><td>190</td></tr><tr><td>25-34</td><td>2.00</td><td>1.00</td><td>180</td></tr><tr><td>35-44</td><td>3.30</td><td>2.00</td><td>120</td></tr><tr><td>45-54</td><td>7.00</td><td>5.00</td><td>100</td></tr><tr><td>55-64</td><td>15.00</td><td>12.00</td><td>70</td></tr><tr><td>65-74</td><td>40.00</td><td>35.00</td><td>30</td></tr><tr><td>75 and above</td><td>120.00</td><td>110.00</td><td>10</td></tr></table>	Age Group	Death rate of A	Death rate of B	Standardised population	0-4	20.00	5.00	100	5-14	1.00	0.50	200	15-24	1.40	1.00	190	25-34	2.00	1.00	180	35-44	3.30	2.00	120	45-54	7.00	5.00	100	55-64	15.00	12.00	70	65-74	40.00	35.00	30	75 and above	120.00	110.00	10	K4	CO3
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4	19	Describe the construction of life table. Explain the various life tables. Give the frame work of life table followed in India.	K4	CO4																																								
5	20	Evaluate the limitations of population projection methods. Discuss how wrong assumptions about fertility, mortality and migration may affect long-term projections.	K5	CO5																																								