Exam.Code:0005
Sub. Code: 0446

2021

B.A./B.Sc. (General) Fifth Semester

Statistics

Paper-301: Demography and Economic Statistics

Time allowed: 3 Hours Max. Marks: 65

***NOTE**: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit. Use of electronic calculator with four basic mathematical operations and upto one memory is allowed. Various symbols used have their usual meaning.*

x-x-x

I. Answer the following:-

a) What do you understand by Demography? (2)

b) Define infant mortality rate. Is it a probability rate? (2)

c) Write the assumptions involved in the construction of Life Table. (2)

d) Define the additive model of time series. (2)

e) Comment upon the choice of base period in the construction of price index number. (2)

f) Explain static law of demand. (2)

g) State the three uses of index numbers. (1)

UNIT – I

II. a) Explain the concept of a life table and its description. How can we construct a complete life table?

b) Compute the crude and standardized death rates of the two populations A and B, regarding B as standard population, from the data given below:

Age-Group (Years)	A		B	
	Population	Deaths	Population	Deaths
Under-10	15000	500	13000	380
10-25	12000	280	30000	620
25-45	40000	1150	52000	1510
45-60	30000	1050	18000	525
Above 60	10000	500	5000	180

(7,6)

P.T.O.

III. a) Define time series and explain its various components. Also discuss the uses of a time series.

b) Describe the moving average method for determining the trend. How is trend eliminated? (8,5)

IV. Discuss different methods of determining the seasonal fluctuations of a given time series. Discuss the relative merits and demerits of each of these methods. (13)

V. a) Compute GFR (General Fertility Rate) and TFR (Total Fertility Rate), from the data given below:

Age of women:	15-19	20-24	25-29	30-34	35-39	40-44	45-49
No. of women (in 000):	16.0	16.4	15.8	15.2	14.8	15.0	14.5
Total Births:	260	2244	1894	1320	916	280	145

b) Discuss gross reproduction rate (GRR) and net reproduction rate (NRR) as measure of population growth and how they are calculated? (5,8)

UNIT – II

VI. a) Describe briefly the problems involved in the construction of an index number.

b) From the following data calculate price index numbers from 2012 with 2004 as base by: (i) Laspeyre's, (ii) Paasche's, (iii) Marshall-Edgeworth and (iv) Fisher's formulae:

Commodities	2004		2012	
	Price	Quantity	Price	Quantity
A	30	10	50	8
B	60	12	70	7
C	50	17	60	17
D	30	22	30	27

(7,6)

VII. a) Explain Factor reversal test and Time reversal test of index number and show that Fisher's ideal index number formula satisfies both these tests.

b) Define index numbers and discuss different methods of construction of index numbers. Also mention some important types of weights and the corresponding price index number. (6,7)

VIII. Write short notes on the following:-

a) Law of demand and supply. (4)

b) Cost of living index number. (3)

c) Wholesale price index number. (3)

d) Chain base index number. (3)

IX. a) Define lognormal distribution. What are its properties?

b) If the demand function is $p = 4 - 5x^2$, for what value of x, the elasticity of demand will be unity? (x is the quantity demanded and p is the price).

c) What are the limitations of an index number? (5,3,5)

x-x-x