

2125
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. 1 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

1. Answer the following:-
- Explain the infant mortality rate.
 - Write any two uses of life table.
 - Discuss the factor reversal test of consistency of index numbers.
 - Discuss the price elasticity of demand.
 - Write the name of different methods to analyze the seasonal indices.
 - Differentiate between the additive and multiplicative mode to analyze time series data.
 - Write any two limitations of index numbers. (2,2,2,2,1,2,2)

Unit-I

2. What do you mean by Fertility? Discuss various measures of fertility in detail with their merits and demerits. (13)
3. Define time series with examples. Discuss briefly the various components of a time series and its uses also. (13)

4a) Below are given the figures of production (in thousand tonnes) of a fertilizer factory:

Year:	2001	2002	2003	2004	2005	2006	2007
Production ('000 tonnes):	80	88	97	84	94	98	90

- Fit a straight line by the Least Square Method and tabulate the trend values.
 - Eliminate the trend, assuming additive model.
 - Obtain the trend value for 2009.
- b) Discuss the moving average method for determining the trend with merits and demerits. (8, 5)
- 5: (a) Discuss gross reproduction rate (GRR) as measure of population growth and how it is calculated?
- (b) Fill in the blanks of the following life table which are marked with question marks:

Age, x:	l_x	d_x	q_x	p_x	L_x	T_x	e_x^0
20	94000	600	?	?	?	4850400	?
21	?	500	?	?	?	?	?

(2)

c) Find the standardized death rate (STDR) by direct method for the given data:

Age-Group (in years)	Standard Population		Population A	
	Population (in 000)	Specific Death Rate	Population (in 000)	Specific Death Rate
0-5	8	50	12	48
5-15	10	15	13	14
15-50	27	10	15	9
50 and above	5	60	10	59

(5, 4, 4)

Unit-II

6). From the following data calculate price index numbers from 2015 with 2010 as base by: (i) Laspeyre's, (ii) Paasche's, (iii) Marshall-Edgeworth and (iv) Fisher's formulae. Also, show that Fisher price index satisfies both the time reversal and factor reversal test.

Commodities	2010		2015	
	Price	Quantity	Price	Quantity
A	10	100	12	150
B	8	80	10	100
C	5	60	10	72
D	12	30	16	33

(13)

7: (a) What is an index number? Describe briefly the problems involved in the construction of an index number.

(b) From the index numbers given below, find out index numbers by shifting base from 2003 to 2007:

Year:	2003	2004	2005	2006	2007	2008	2009
Index No.	100	76	68	50	60	70	75

(8, 5)

8: (a) Describe the chain base method of construction of index numbers and discuss its merits and demerits as compared with the fixed base method.

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). (10, 3)

9a) Explain the cost of living or consumer price index number and its construction.

b) Discuss the uses or importance of Index numbers. (7, 6)