

This question paper contains 4+1 printed pages]

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

S. No. of Question Paper : 7886

Unique Paper Code : 2371102

F-1

Name of the Paper : Applied Statistics—I (DC 1.2)

Name of the Course : B.Sc. (Hons.) Statistics

Semester : I

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *all* questions from Section A and any *four* questions from Section B.

Section A

1. Attempt any *five* parts :

(a) Name the statistical office/body, which publish the following journal/abstract :

(i) Indian Forest Statistics (Annual) .

(ii) Vital Statistics of India (Annual).

(b) Name *two* index number formulae which satisfy circular test.

P.T.O.

- (c) Interpret the statement, NRR for a country is 1.151.
- (d) Distinguish between rates and ratios of vital events.
- (e) (i) Vital rates are customarily expressed as.....
- (ii) The age-specific death rate for the babies of age less than one year is specifically called.....
- (f) Give the relation for converting the chain index number to fixed-base index number.
- (g) Write *two* demerits of Crude Rate of Natural Increase. 5×2=10
2. (a) Describe *two* distinct methods of conducting census. Why a 1961 census is considered to be an innovative census ? Give any *three* suggestions for improvement in census methodology.
- (b) Discuss the nine-fold classification of Land use statistics.
- (c) Describe in brief functions of any *four* Statistical Offices at the centre. 7,4,4

Section B

3. (a) What are Marshall-Edgeworth, Laspeyre's and Paasche's index numbers ?

Prove that Marshall-Edgeworth Index number lies between Laspeyre's and

Paasche's index numbers.

- (b) In the usual notations prove that :

6,6½

$$(i) \quad q_x = \frac{2m_x}{2 + m_x}$$

$$(ii) \quad m_x = - \frac{1}{l_{x+\frac{1}{2}}} \frac{d}{dx} \left[l_{x+\frac{1}{2}} \right].$$

4. (a) What is a chain index ? Discuss its advantages and disadvantages

over fixed base index. Describe the steps involved in the construction

of chain index.

- (b) What are the usual sources of data collection on vital events ? Discuss

their relative merits and demerits.

6,6½

5. (a) Distinguish between fertility and fecundity. Define GFR. Discuss age-specific

fertility rate while comparing it with GFR.

P.T.O.

- (b) What is deflating of index numbers ? What is the need for deflating index numbers ? Illustrate your answer with the help of an example. 6½,6
6. (a) Explain the purpose for standardizing death rates. Describe any *one* method of standardization.
- (b) Define splicing. Given below are the two price index series. Splice them on the base 1994 = 100. By what percentage did the price of steel rise between 1990 and 1995 ?

Year	Old Price Index for Steel base 1985 = 100	New Price Index for Steel base 1995 = 100
1990	141.5	
1991	163.7	
1992	158.2	
1993	156.8	99.8
1994	157.1	100
1995		102.3

7. (a) Define Gross Reproduction Rate. Derive a relationship between GRR and TFR when the sex ratio at birth is more or less constant at all ages of the women in the reproduction period.
- (b) What is a cost of living index number ? Describe aggregate expenditure method to construct cost of living index number. Also write *two* uses of cost of living index number.

6½,6