(b) Discuss briefly the use of information technology in the Indian Statistical System.

(c) Prove that :

$$e_x = \left(\sum_{n=1}^{\infty} l_x + n \right) \div l_x$$

(5,5,5)

[This question paper contains 8 printed pages.]

Your Roll No...............

Instructions for Candidates

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

2. Attempt **six** questions in all.

3. Q. No. **1** is compulsory.

4. Attempt **five** more questions selecting at least **two** questions from each section.

5. Use of a non-programmable scientific calculator is allowed.

P.T.O.

1. (a) Fill in the blanks :

    (i) Fisher's 'ideal' formula does not satisfy _____ test.

    (ii) Purchasing power of money can be assessed through _____ .

    (iii) An upward bias is given by the _____ formula.

    (iv) When the homogeneity errors R=1, it shows that there is _____ item.

    (v) Childbearing age group of women in India is _____ .

    (vi) Gross reproduction rate cannot be _____ net reproduction rate.

    (vii) The value of the vital index greater than 1 is indicative of _____ .

6. (a) It is said that index numbers are a specialized type of averages. How far do you agree with this statement? Briefly explain time reversal and factor reversal tests.

    (b) Calculate quantity index (i) Laspeyre's Method (ii) Paasche's method (iii) Marshall- Edgeworth method and (iv) Dorbish- Bowley's method from the following data:

Year	2000		2009	
Commodities	Price	Total value	Price	Total value
A	10	100	12	144
B	12	144	14	196
C	14	196	16	256
D	16	256	18	324

(7,8)

7. (a) Discuss the main functions of the office of Registrar General of India.

P.T.O.

find out the amount he spends on food and clothing.

Group	Food	Clothing	House rent	Fuel and light	Miscellaneous
Expenditure (Rs.)	?	?	100	60	90
Group index	150	120	150	115	140

(8,7)

5. (a) Define Gross Reproduction Rate and Net Reproduction Rate. What is the difference between them?

(b) Complete the missing entries in the life table given below.

Age(in Years)	l_x	d_x	p_x	q_x	L_x	T_x	e_x°
4	90,000	400	?	?	?	3,75,000	?
5	?	300	?	?	?	?	?

(7,8)

(viii) The standard number of births originating in a cohort is called _____ of the life table.

(ix) The monthly Abstract of Statistics is an important publication of the _____ organization.

(b) What are the different methods of collection of vital statistics?

(c) Write the name of any four organizations established by the Government of India specifically for the purpose of collection, compilation, and publication of data. (9×1,2×3)

2. (a) Define Infant Mortality Rate and Age-Specific Death Rate. What is the difference between them?

P.T.O.

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

Age Group (Years)	A		B	
	Population	Death	Population	Death
Under-10	30,000	500	11,000	402
10-20	22,000	250	29,000	650
20-40	45,000	1,150	60,500	1,512
40-60	25,000	1,050	14,000	475
Above-60	9,000	450	4,000	150

(8,7)

3. (a) "Index number is an economic barometer", comment on this statement and explain briefly the various problems involved in their construction.

(b) Use the data given below to prove that Fisher's ideal index satisfies the factor reversal test.

Item	Base year		Current year	
	Price per unit (Rs.)	Expenditure	Price per unit (Rs.)	Expenditure
1	2	40	5	75
2	4	16	8	40
3	1	10	2	24
4	5	25	10	60

(7,8)

4. (a) Describe the role and responsibility of CSO and NSSO. Name their main divisions.

(b) A shoemaker in the city of Agra earns Rs. 450 per month. The cost-of-living index for a particular month is given as 140. Using the following data,

P.T.O.