LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **STATISTICS**

FIFTH SEMESTER – NOVEMBER 2012

# ST 5506/ST 5502 - APPLIED STATISTICS

 Date : 06/11/2012 Dept. No. Max. : 100 Marks

 Time : 9:00 - 12:00

**PART – A**

**Answer ALL the questions: (10X2=20 Marks)**

1. Mention any two uses of index numbers.
2. Define Laspeyre’s and Paasche’s index numbers.
3. Explain the concept of business cycle.
4. Mention the different types of time series models for the component combinations.
5. State any two uses of vital statistics.
6. Define total fertility rate.
7. Define partial correlation coefficient.
8. Given r12 = 0.77, r13= 0.72, r23= 0.52, find R1.23
9. What is forest statistics?
10. Define national income.

**PART – B**

**Answer any FIVE questions (5X8=40 Marks)**

1. Explain the tests to be satisfied by a good index number. Show that Fisher’s Index number is an Ideal Index number.
2. What is meant by (a) splicing (b) deflating and (c) base shifting of index numbers?
3. Explain link relative method to measure seasonal fluctuations.
4. Explain fitting of a second degree parabola by the method of least squares.
5. What is life table? Briefly outline the uses of life table.
6. Define gross and net reproduction rates. Discuss the steps for estimating the net reproduction rate.
7. Discuss the methods of national income estimation.
8. Write short notes on (i) De Facto method (ii) De Jure method.

**P.T.O]**

**PART – C**

**Answer any TWO questions: (2X20=40 Marks)**

1. (a) Discuss the problems and precautions in the construction of an index number.

(b) What are the uses of consumer price index number? Calculate the CPI using the following data:

|  |  |  |
| --- | --- | --- |
| **Items** | **Index Number** | **Weight** |
| Food | 352 | 48 |
| Fuel | 220 | 10 |
| Clothing | 230 | 8 |
| Rent | 160 | 12 |
| Miscellaneous | 190 | 15 |

1. (a) Briefly explain the components of time series.

(b) Explain Ratio to Moving Average method for determining seasonal index.

1. (a) Explain the various mortality rates used in vital statistics and discuss their relative merits.

(b) Estimate the standardized death rates for the two countries from the data given below:

|  |  |  |
| --- | --- | --- |
| **Age group (in years)** | **Death Rate per 1000** | **Standardised** **Population (in lakhs)** |
| **Country A** | **Country B** |
| 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 |

1. (a) Write short notes on (i) Central Statistical Organisation

 (ii) National Sample Survey Organisation

(b) Define (i) Partial Regression (ii) Multiple Correlation (iii) Multiple Regression

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