



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. DEGREE EXAMINATION – ECONOMICS
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SECOND SEMESTER – APRIL 2016

CO 2110 - STATISTICAL METHODS FOR ECONOMICS

Date: 26-04-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL questions.

(10 x 2 = 20 Marks)

- Discuss the characteristics of Statistics
- List any two limitations of statistics.
- What are the methods of collecting Primary Data?
- What are the advantages of classifications of data?
- There are 50 students in a class. The average marks of the 10 failed students is 25. The total marks got by the entire class is 2,810. What is the average mark of the successful candidates?
- Find the range and its coefficients for the following data: 45, 35, 50, 65, 52, 40.
- Define the term correlation.
- Describe the simple average method of measuring seasonal index.
- Define index numbers.
- State any limitation of index numbers.

SECTION B

Answer any FIVE questions:

(5 X 8 = 40 Marks)

- (a) Describe the various non - probability sampling techniques.
(b) Explain the various types of classification.
- Construct the histogram and frequency for the following frequency distribution:

| | | | | | | | | |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| <i>Wight(kg)</i> | 41 – 45 | 46 – 50 | 51 – 55 | 56 – 60 | 61 – 65 | 66 - 70 | 71 – 75 | 76 - 80 |
| <i>No.of persons</i> | 4 | 5 | 9 | 6 | 11 | 5 | 7 | 3 |

- Find the geometric mean for the following data:

| | | | | | | |
|-----------------------|--------|---------|---------|---------|---------|---------|
| <i>marks</i> | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 - 60 |
| <i>No.of students</i> | 7 | 5 | 25 | 33 | 23 | 10 |

- Calculate mode for the following distribution:

| | | | | | | |
|-----------------------|--------|---------|---------|---------|---------|---------|
| <i>Marks</i> | 1 – 10 | 11 – 20 | 21 – 30 | 31 – 40 | 41 – 50 | 51 - 60 |
| <i>No.of students</i> | 10 | 20 | 30 | 50 | 40 | 30 |

- The scores of two players A and B in 12 rounds are given below:

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| A | 84 | 87 | 88 | 94 | 92 | 87 | 85 | 86 | 94 | 93 | 92 | 90 |
| B | 89 | 85 | 84 | 94 | 93 | 94 | 95 | 83 | 86 | 87 | 86 | 80 |

Identify the better player and the more consistent player

- Calculate the trend values by the method of moving averages, assuming a four-yearly cycle, from the following data relating to sugar production in India.

| | | | | | | | | | | | | |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <i>Year</i> | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
| <i>Sales</i> | 37.4 | 31.1 | 38.7 | 39.5 | 47.9 | 42.6 | 48.4 | 64.6 | 58.4 | 38.6 | 51.4 | 84.4 |

17. Construct the cost of living index number from the following group data:

| Commodity | Weights | Current year price | Base year price |
|-----------|---------|--------------------|-----------------|
| Rice | 5 | 60 | 40 |
| Wheat | 4 | 40 | 30 |
| Pulses | 3 | 60 | 50 |
| Oil | 5 | 30 | 25 |
| Milk | 8 | 50 | 40 |

SECTION C

Answer any TWO questions

(2 X 20 = 40 Marks)

18.(a) From the following data find mean, median and mode. Verify the empirical relationship.

| Marks | 1 – 5 | 6 – 10 | 11 – 15 | 16 – 20 | 21 – 25 | 26 – 30 | 31 – 35 | 36 – 40 | 41 – 45 |
|-----------------|-------|--------|---------|---------|---------|---------|---------|---------|---------|
| No. of students | 7 | 10 | 16 | 30 | 24 | 17 | 10 | 5 | 1 |

(b) Two samples of size 40 and 50, have the same mean 53, but different standard deviations 19 and 18, respectively. Find the standard deviation of the combined sample. (15+ 5)

19. Calculate Bowley’s coefficient of skewness from the following data:

| Marks | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 | 60 – 70 | 70 – 80 |
|----------------|--------|---------|---------|---------|---------|---------|---------|---------|
| No. of persons | 10 | 25 | 20 | 15 | 10 | 35 | 25 | 10 |

(20)

20.a) Calculate coefficient of rank correlation from the following data:

| | | | | | | | | | | | |
|------------------|----|----|----|----|----|----|----|----|----|----|----|
| Marks in Science | 40 | 46 | 54 | 60 | 70 | 80 | 82 | 85 | 85 | 90 | 95 |
| Marks in Maths | 45 | 45 | 50 | 43 | 40 | 75 | 55 | 72 | 65 | 42 | 70 |

b) Find the correlation coefficient between x and y and obtain the regression line equation from the following data $\Sigma X = 125, \Sigma Y = 100, \Sigma XY = 508, \Sigma X^2 = 650, \Sigma Y^2 = 460, N = 25$

(10 +10)

21. Using the following data compute Fisher’s Ideal price index numbers and verify whether it satisfies the Time reversal and Factor reversal tests:

| COMMODITY | Base year price | Base year quantity | Current Year Price | Current Year quantity |
|-----------|-----------------|--------------------|--------------------|-----------------------|
| A | 6 | 50 | 10 | 56 |
| B | 2 | 100 | 2 | 120 |
| C | 4 | 60 | 6 | 60 |
| D | 10 | 50 | 12 | 24 |
| E | 8 | 40 | 12 | 36 |

(20)
