

 **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**B.A. ECONOMICS - IV SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

 **ECA 4222 – STATISTICAL METHODS FOR ECONOMICS**

 **(For 2022-23 batch students)**

**Time- 2 hrs Max Marks-60**

**This question paper contains TWO printed pages and THREE parts**

**Graph sheets to be used for Ques No 8 and 11. Calculators are allowed**

 **PART-A**

**I Answer any TEN of the following: 3X10=30**

1. Define statistics.
2. Mention the methods used to collect primary data?
3. What are the methods of classification of data?
4. Calculate range and coefficient of range in the following distribution

| Scores | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| f | 6 | 7 | 3 | 11 | 4 | 2 | 5 | 8 | 3 |

1. Calculate Q3 from the following data: 47, 48, 51, 52, 56, 58, 60, 62, 63, 64, 66, 66, 68, 70, 73.
2. Differentiate between bar charts and histograms.
3. Prepare a discrete frequency distribution table for the following: 10,20,20,30,40,25,25,30,40,20,25,25,15,25,30,40,50,40,50,30,25,25,15,40.
4. Draw a histogram and frequency polygon for the following:

| X | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 |
| --- | --- | --- | --- | --- | --- | --- |
| f | 5 | 12 | 25 | 45 | 32 | 6 |

1. Calculate CV when Standard deviation=7.62 and Mean=50.
2. What is time reversal and factor reversal test?
3. Fit a trend line using the graphic method:

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Production | 20 | 22 | 24 | 21 | 23 | 25 | 23 |

1. Explain the concept of kurtosis.

 **PART B**

**II Answer any THREE of the following: 5X3=15**

1. Calculate median from the following data:

| C-I | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| --- | --- | --- | --- | --- | --- | --- |
| f | 10 | 12 | 17 | 15 | 11 | 9 |

1. Calculate rank correlation coefficient from the following data:

| R1 | 1 | 6 | 5 | 10 | 3 | 2 | 4 | 9 | 7 | 8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R2 | 3 | 5 | 8 | 4 | 7 | 10 | 2 | 1 | 6 | 9 |

1. Using the following information, construct index numbers using Laspeyer’s method:

| Commodity | P0 | Q0 | P1 | Q1 |
| --- | --- | --- | --- | --- |
| A | 2 | 20 | 5 | 15 |
| B | 4 | 4 | 8 | 5 |
| C | 1 | 10 | 2 | 12 |
| D | 5 | 5 | 10 | 6 |

1. Calculate the arithmetic mean using the short-cut method:

| Marks | No of students |
| --- | --- |
| 0-10 | 5 |
| 10-20 | 10 |
| 20-30 | 25 |
| 30-40 | 30 |
| 40-50 | 20 |
| 50-60 | 10 |

1. Calculate the quartile deviation and the coefficient of quartile deviation:

| Marks | f |
| --- | --- |
| 10 | 4 |
| 20 | 7 |
| 30 | 15 |
| 40 | 8 |
| 50 | 7 |
| 60 | 2 |

**PART C**

**III Answer any ONE of the following: 15X1=15**

1. Calculate Bowley’s coefficient of skewness for the following series:

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| f | 10 | 40 | 20 | 0 | 10 | 40 | 16 | 14 | 0 |

1. Calculate the mode using the grouping table:

| X | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| f | 10 | 2 | 20 | 3 | 8 | 4 | 3 | 7 | 17 | 19 | 16 | 4 |

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