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DATE:**21-04-16**

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

B.A ECONOMICS–IV SEMESTER

SEMESTER EXAMINATION- APRIL 2016

**ECA 412: Statistical Economics**

**Time: 3hrs                                                                   Maximum marks: 100**

(For supplementary candidates)

Do not write the register number on the question paper

Please attach the question paper along with the answer script.

*This question paper has 4 printed pages and 3 parts.*

*And 3 graph problems*

**Part – A**

**I Answer any 10 of the following [10 x 3 = 30]**

1. Construct a cumulative frequency table from the following data of attrition rate of 20 employees in a firm in a year.

02,03,06,08,07,02,03,02,03,08,07,02,04,02,09,08,07,07,05,02

1. What are different types of random sampling?
2. Draw a Multiple bar diagram from the following data regarding the revenue and expenditure of a MNC consultancy firm in one year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Consultancy firm | A | B | C | D | E | F |
| Revenue [cr] | 25 | 30 | 32 | 40 | 45 | 55 |
| Expenditure  [cr] | 20 | 25 | 30 | 40 | 45 | 50 |

1. Find the z or mode for the following raw data regarding the height of the candidates applying for a recruitment process in National Defence Academy [NDA]

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| height | 6.2 | 7.2 | 7.3 | 7.4 | 7.2 | 7.02 | 7.2 | 6.2 | 6.02 |

1. Frame a hypothetical table / schedule and name the parts of the table.

ECA-412-B-16

1. Find arithmetic mean for the following 03,14,08,24,91 and 66.
2. Find the Skewness for the following values Q**3**= 14, Q**1**= 24 and Q**2** or M = 11.
3. Find the C.V, coefficient of variance, if standard deviation is 14 and arithmetic mean is 24.
4. Find Coefficient of mean deviation,If Mean deviation is 20& arithmetic mean is 25,
5. Find Rank correlation coefficient if ∑ D**2**= 24 and N = 10.
6. Derive the normal Regression equation of Y on X and X on Y.
7. What are components of time series analysis?

**PART-B**

**II Answer any 5 of the following [5x 5 = 25]**

1. Find the median from the following data,

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Intake of Calories | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
| By young adults | 01 | 08 | 14 | 24 | 07 | 04 | 03 |

1. Calculate the coefficient of correlation from the following data

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 09 | 08 | 17 | 06 | 05 | 14 | 24 | 12 | 01 | 10 |
| Y | 15 | 06 | 14 | 01 | 02 | 24 | 07 | 08 | 09 | 10 |

1. Draw a Pie diagram, on the graph sheet for the following expenditure incurred by a prudent family

|  |  |
| --- | --- |
| Items | Family –Expenditure |
| Groceries | 24 |
| food | 10 |
| clothes | 11 |
| education | 14 |
| entertainment | 05 |
| miscellaneous | 10 |

1. From the following data, construct an index for 2015 taking 2014 as the base year, using Laspeyer’s method.

|  |  |  |  |
| --- | --- | --- | --- |
| Commodity | Price in 2015 [Rs] | Price in 2014 [Rs] | Qty-2014 |
| L | 25 | 27 | 8 |
| M | 20 | 24 | 6 |
| N | 24 | 14 | 5 |
| O | 14 | 16 | 4 |

1. For the following find the Skewness by Karl Pearson’s method.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
| f | 5 | 15 | 45 | 20 | 34 |

1. Fit a trend line by semi average method for the following

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Years | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| OUTPUT | 14 | 24 | 20 | 21 | 25 | 22 |

**PART-C**

**III. Answer any 3 of the following [3x 15 = 45]**

1. Find the mean for the following by direct, deviation and step deviation methods.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
| Students | 03 | 06 | 14 | 24 | 07 | 02 | 01 |

1. Find the quartile deviation of the following data

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Wage level | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| Number of persons | 15 | 14 | 23 | 22 | 24 | 10 | 5 |

1. From the following data obtain 2 regression equations of X on Y and Y on X

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 05 | 03 | 05 | 14 | 06 |
| Y | 04 | 10 | 24 | 02 | 01 |

1. Find the mode by grouping method

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class interval | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 | 55-60 |
| f | 10 | 2 | 20 | 3 | 8 | 4 | 3 | 7 | 17 | 19 | 16 | 4 |

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