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Register Number:

DATE: 08-04-2019

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

**M.A. ECONOMICS- II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2019**

**EC 8118: Statistical Method for Economists**

**Time: 2.5 Hours Maximum Marks-70**

**This question paper has 1 printed page and 3 parts**

**Part A. Answer any five of the following: 2 X 5=10**

1. Explain Type I and Type II error in hypothesis testing.
2. Define Moments and express Arithmetic Mean, Standard Deviation, Skewness and Kurtosis in terms of moments.
3. Differentiate classical, empirical and axiomatic definitions of probability.
4. Discuss the steps of preparing a histogram and frequency curve.
5. Differentiate between permutation and combination.
6. Discuss p-value and its relevance in statistical decision making.
7. What is meant by Mean Squared Error?

**Part B. Answer any three of the following: 10 X 3 =30**

1. Discuss probability revision and Bayes’ Theorem with an example.
2. Discuss the characteristics of the following theoretical probability distributions- Binomial, Poisson, and Normal.
3. Discuss arithmetic mean, quartiles, standard deviation, skewness and kurtosis. Calculate them for the following data.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | **1140** | **1204** | **1291** | **1347** | **1399** | **1505** | **1578** | **1652** | **1784** | **1994** |
| **X** | **831** | **852** | **873** | **895** | **917** | **956** | **952** | **966** | **103** | **109** |

1. Discuss confidence interval approach and test of significance approach of hypothesis testing.
2. Discuss sampling unit and sampling frame and various methods of probabilistic and non-probabilistic sampling techniques.

**Part C. Answer any two of the following: 15 X 2 =30**

1. For the following data on X and Y, estimate the parameters of the equations **Y= a +bX,** **X= c +dY** and interpret the relationship based on the estimates.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | **334** | **311** | **355** | **464** | **488** | **571** | **553** | **416** | **354** | **315** | **362** | **378** | **424** | **398** |
| **X** | **175** | **202** | **203** | **268** | **294** | **266** | **306** | **271** | **258** | **245** | **241** | **301** | **265** | **273** |

1. Explain weighted and un-weighted methods of constructing index numbers and its adequacy tests. Complete the following series A and B by appropriate splicing technique.

|  |  |  |
| --- | --- | --- |
| **Year** | **Series A** **(base year 2012)** | **Series B** **(base year 2014)** |
| **2012** | **100** |  |
| **2013** | **120** |  |
| **2014** | **150** | **100** |
| **2015** |  | **110** |
| **2016** |  | **120** |
| **2017** |  | **150** |

1. Discuss Karl Pearson coefficient of correlation, Rank correlation and Correlation through Concurrent deviation method and calculate all the three correlation coefficients for the following data.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | 70 | 65 | 150 | 155 | 90 | 140 | 95 | 120 | 110 | 63 | 147 | 77 | 83 | 115 |
| **X** | 80 | 100 | 260 | 240 | 120 | 220 | 140 | 200 | 160 | 95 | 222 | 117 | 118 | 178 |

**EC 8118\_A\_19**