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DATE:

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

**SEMESTER EXAMINATION**

**B.COM II SEMESTER April 2018**

**BC2416: Business Statistics**

**TIME- 2 ½ HOURS MAX. MARKS: 70**

**This paper contains three printed page and four parts**

**SECTION A**

**Answer any five of the following questions. Each question carries two marks. (5x2=10)**

1. Mention any two important functions of statistics.
2. What are the objects or utility of diagrammatic representation of data?
3. Mean height of 30 boys is 160 cms. Mean height of 20 girls is 150 cms. Find the combined average of both groups put together.
4. What is the purpose of using correlation and regression analysis?
5. State the components of time series analysis.
6. List out any two utilities of index numbers.
7. Write a short note on probable error.

**SECTION B**

**Answer any three of the following questions. Each question carries five marks. (3x5=15)**

1. “Though science of statistics has universal applicability, still it suffers from certain drawbacks”. In the light of this statement discuss the limitations of statistics.
2. Classify the following data by taking Inclusive class intervals such that their mid- values are 17, 22, 27, 32 and so on.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | 42 | 30 | 54 | 40 | 48 | 15 | 17 | 51 | 42 |
| 25 | 41 | 30 | 27 | 42 | 36 | 28 | 26 | 37 | 54 |
| 44 | 31 | 36 | 40 | 36 | 22 | 30 | 31 | 19 | 48 |
| 16 | 42 | 32 | 21 | 22 | 46 | 33 | 41 | 21 | - |

1. An investigator collected the following marks with respect to Accountancy and Statistics subjects. Calculate the rank correlation coefficient and comment on its value.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Candidates** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** |
| **Marks in Accountancy** | 60 | 15 | 20 | 28 | 12 | 40 | 80 | 20 |
| **Marks in Statistics** | 10 | 40 | 30 | 50 | 30 | 20 | 60 | 30 |

1. Discuss the merits and demerits of Scatter Diagram Method in correlation analysis.
2. The Shareholders Research Centre of India has conducted recently a research-study on price behaviour of three leading industrial shares: A, B and C for the period 2013 to 2018. The results are published in the Quarterly Journal:

|  |  |  |  |
| --- | --- | --- | --- |
| **Share** | **Average Price** | **Standard Deviation** | **Current Selling Price** |
| A | 18.2 | 5.4 | 36.00 |
| B | 22.5 | 4.5 | 34.75 |
| C | 24.0 | 6.0 | 39.00 |

The above figures are given in Rupees.

(a) Which share, in your opinion, appears to be more stable in value?

(b) If you are the holder of all the three shares, which one would you like to dispose of at present, and why?

**SECTION C**

**Answer any three of the following questions. The question carries ten marks. (3x10=30)**

1. What is meant by measures of central tendency? Briefly discuss the objectives and characteristics of measuring dispersion.
2. Construct a Fisher’s Ideal Index from the following data and then show that it satisfies:
3. Time reversal test
4. Factor reversal test.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Items** | **Base Year (2017)** | | **Current Year (2018)** | |
| **Price (Rs.)** | **Quantity** | **Price (Rs.)** | **Quantity** |
| A | 10 | 40 | 12 | 45 |
| B | 11 | 50 | 11 | 52 |
| C | 14 | 30 | 17 | 30 |
| D | 8 | 28 | 10 | 29 |
| E | 12 | 15 | 13 | 20 |

1. Compute the trend values by the method of least squares from the data given below:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| No. of Sheep (in Lakhs) | 56 | 55 | 51 | 47 | 42 | 38 | 33 | 32 |

1. From the following data of the ages of different persons, determine the modal age using the grouping method:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age (in years) | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 |
| No. of Persons | 2 | 3 | 4 | 10 | 11 | 12 | 3 | 2 | 1 |

1. **(a)** Distinguish between correlation and regression analysis.**(5 marks)**

**(b)** Calculate standard deviation using actual mean from the following:**(5 marks)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Age (in years)** | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| **No. of Students** | 2 | 4 | 8 | 10 | 12 | 4 |

**SECTION D**

**Answer the following questions. The Compulsory question carries fifteen marks.**

1. **(a)** You are given the following data:

|  |  |  |
| --- | --- | --- |
| **Particulars** | **X** | **Y** |
| Arithmetic Mean | 36 | 85 |
| Standard Deviation | 11 | 8 |

Correlation coefficient using Karl Person’s method between X and Y = 0.66

(i) Find the two regression equations

(ii) Estimate the value of X when Y = 75**(8 marks)**

**(b)** Compute Consumer Price Index number from the following:**(7 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Base Year Price** | **Current Year Price** | **Weight** |
| **(Rs.)** | **(Rs.)** | **(%)** |
| Food | 400 | 550 | 35 |
| Rent | 250 | 300 | 25 |
| Clothing | 500 | 600 | 15 |
| Fuel | 200 | 350 | 20 |
| Entertainment | 150 | 225 | 5 |

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