# B.Com(CS) DEGREE EXAMINATION,APRIL 2019
## II Year IV Semester
## Statistics - II

**Time : 3 Hours** **Max.marks :75**

### Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define Method of Least Square.
2. State the importance uses of regression analysis.
3. What is meant by Time series?
4. Mention the limitations of index number.
5. Define t- distribution.
6. What is meant by Rank Correlation?
7. Define Regression.
8. What is meant by Seasonal Variations?
9. What is meant by Cost of living Index?
10. Define Small sample test.
11. Find the coefficient of correlation for the following data.

    N = 11 $\sum x = 117$, $\sum y = 260$, $\sum x^2 = 1313$, $\sum y^2 = 6580$, $\sum xy = 2827$
12. Calculate by simple Aggregate method index number for the year 2017 based on 2018.

| Commodity | Unit | 2017 | 2018 |
|---|---|---|---|
| Rice | Quintal | 250 | 300 |
| Wheat | Quintal | 100 | 125 |
| Pulses | Quintal | 200 | 300 |
| Oil | Litre | 150 | 200 |
| Milk | Litre | 250 | 350 |

### Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Write a note on Second Degree Parabola.
14. Calculate Karl- Pearson Co-efficient of Correlation from the following data.

| X | 68 | 69 | 71 | 73 | 67 | 67 | 65 | 66 |
|---|---|---|---|---|---|---|---|---|
| Y | 72 | 70 | 69 | 70 | 68 | 64 | 68 | 67 |

15. Find the 4 yearly moving averages from the following data.

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|
| Sales | 4 | 7 | 10 | 16 | 20 | 25 | 32 | 40 |

16. The Following are the group index numbers and the group weights of an average working class family's budget construct the cost of living index number.

| Commodity | Index No | Weight |
|---|---|---|
| A | 330 | 50 |
| B | 208 | 10 |
| C | 200 | 12 |
| D | 162 | 12 |
| E | 180 | 16 |

17. Ten Oil tins are taken at random from an automatic filling machine. The mean weight of the Tin is 15.8kg and standard deviation is 0.50kg. Does the sample mean differ significantly from the intended weight of 16kg? (t = 2.26)

18. From the following data, Calculate the value of Y, when X=12

| | X | Y |
|---|---|---|
| Average | 7.6 | 14.8 |
| Standard Deviation | 3.6 | 2.5 |
| Correlation co-efficient r | 0.99 | |

19. From the following data, Calculate the Rank Correlation between X and Y.

| X | 36 | 56 | 20 | 65 | 42 | 33 | 44 | 50 | 15 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|
| Y | 50 | 35 | 70 | 25 | 58 | 75 | 60 | 45 | 80 | 38 |

## **Section C** $(2 \times 15 = 30)$ Marks

Answer any **TWO** questions

20. Distinguish between Correlation and Regression Analysis.

21. Find the trend values by the method of Least Squares.

| Year | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Values | 28 | 24 | 20 | 18 | 20 | 14 | 6 |

22. Calculate quantity index from the following data through,

    i) Laspeyre's method ii) Paasche's method iii) Fisher's method

| | 2017 | | 2018 | |
|---|---|---|---|---|
| Commodity | Price (Rs) | Quantity | Price (Rs) | Quantity |
| N | 60 | 20 | 56 | 24 |
| O | 74 | 30 | 70 | 32 |
| P | 50 | 24 | 60 | 20 |

| | | | | |
|---|---|---|---|---|
| Q | 40 | 28 | 50 | 30 |
| R | 80 | 16 | 90 | 20 |
| S | 64 | 12 | 70 | 12 |

23. Four machines A,B,C and D are used to produce a certain kind of cotton fabrics. Samples of size 4 with each unit as 100 square metres are selected from the outputs of the machines at random, and the number of flaws in each 100 square metres are counted, with the following result.

| A | B | C | D |
|---|---|---|---|
| 8 | 6 | 14 | 20 |
| 9 | 8 | 12 | 22 |
| 11 | 10 | 18 | 25 |
| 12 | 4 | 9 | 23 |

Do you think that there is a significant difference in the performance of the four machines?