B.Com(CS) DEGREE EXAMINATION,APRIL 2020
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. What is meant by Rank Correlation?

3. What are the properties of the coefficient of correlation?

4. Define Regression.

5. From the following particulars calculate X on Y

   $\sum X = 25 \sum X^2 = 165$
   $\sum Y = 99 \sum XY = 533$

6. $p_1q_0 = 1360$; $p_0q_1 = 1344$; $p_1q_0 = 1900$; $p_1q_1 = 1880$. Calculate Laspeyre's index number.

7. What is meant by Seasonal Variations?

8. Calculate cost of Living Index number

   $\sum pw = 1568.75 \sum w = 12$

9. $p_1q_0 = 392$; $p_1q_1 = 348$; $p_0q_0 = 308$; $p_0q_1 = 288$. Find Fisher's Ideal Index Number.

10. What are the components of time series?

11. What is cluster sampling.

12. Calculate Rank correlation from the following data

    $\sum dxy^2 = 82 \ N = 10$

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	12	9	8	10	11	13	7
Y	14	8	6	9	11	12	3

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

X	85	60	73	40	90
Y	93	75	65	50	80

16. 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

17. An enquiry into the budgets of middle class families in a certain city gave the following information:

Expenses	Food	Fuel	Clothing	Rent	Miscellaneous
	35%	10%	20%	15%	20%
Price (2017)	Rs 150	Rs 25	Rs 75	Rs 30	Rs 40
Price(2018)	Rs 145	Rs 23	Rs 65	Rs 30	Rs45

What is the cost of living index number of 2018 as compared with that of 2017?

18. Calculate quantity index from the following data through,

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

Year	Commodity I		Commodity II		Commodity III	
	Price (Rs)	Quantity	Price (Rs)	Quantity	Price	Quantity
2017	5	10	8	6	6	3
2018	4	12	7	7	5	4

19. A machine puts out 16 imperfect articles in a sample of 500. After the machine is overhauled, it puts out 3 imperfect articles in a batch of 100. Has the machine improved?

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

Answer any **TWO** questions

20. From the following data, Calculate the value of Y for X = 60 and also estimate the value of X for Y = 200

	X	Y
Average	68	150
Standard Deviation	2.5	20
Correlation co-efficient r	0.6	

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

Year	2012	2013	2014	2015	2016	2017	2018
Values	60	72	75	65	80	85	95

22. Compute Index Number using Fisher's Ideal Formula show that it satisfies time Reversal Test and Factor Reversal Test.

Commodity	Base Year Quantity	Price	Current Year Quantity	Price
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

23. What is t - distribution? Explain some of its applications.