



**IV Semester B.Com. Degree Examination,
September/October 2020**

COMMERCE

Paper 4.3 – Quantitative Techniques – II

(New)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **any ten** questions from the following :

(10 × 2 = 20)

1. What is 'zero correlation'?
2. Define 'Regression'.
3. Write any two assumptions of Karl Pearson's correlation.
4. Write any two uses regression analysis.
5. What are the types of index numbers?
6. What is CPI?
7. What are the components of time-series?
8. What is seasonal variation?
9. What are irregular variations?
10. What is probability?
11. What are independent events?
12. What do you mean by mutually exclusive events?



23405

SECTION - B

(3 × 5 = 15)

Answer **any three** of the following :

13. Define Correlation. Explain the uses of correlation.
14. From the following data, estimate the value of Y when $X = 50$ and also find out correlation coefficient.

$$\bar{X} = 53$$

$$\bar{Y} = 27$$

The regression coefficient of y on $X = -1.5$

The regression coefficient of X on $Y = -0.2$

15. Ascertain the trend by the method of semi-averages is represent graphically.

| Year | Production (in million tonnes) |
|------|--------------------------------|
| 1994 | 100 |
| 1995 | 120 |
| 1996 | 95 |
| 1997 | 105 |
| 1998 | 108 |
| 1999 | 102 |
| 2000 | 112 |
| 2001 | 110 |

16. Calculate cost of living index method by family budget method.

| Group | Index number | Weights |
|----------|--------------|---------|
| Food | 350 | 5 |
| Fuel | 220 | 1 |
| Clothing | 230 | 1 |
| Rent | 160 | 3 |
| Others | 190 | 2 |

17. In a class there are thirteen students. 5 of them are boys and rest are girls. Find the probability that two students selected at random will be both girls.

SECTION - C

Answer **any three** of the following questions :

(3 × 15 = 45)

18. Calculate coefficient of correlation from the following taking 65 and 70 as assumed mean for X and Y respectively.

X: 45 55 56 58 60 65 68 70 75 80 85

Y: 56 50 48 60 62 64 65 70 74 82 90

19. From the data below, calculate two regression equations, taking deviations from actual means.

X: 25 28 35 32 31 36 29 38 34 32

Y: 43 46 49 41 36 32 31 30 33 39

20. From the following data fit a trend line by the method of least squares. Show trend line on the graph.

Year Profit (in lakhs)

2003 12

2004 13

2005 13

2006 16

2007 19

2008 23

2009 21

2010 23

21. Calculate Fisher's Ideal Index and show that it satisfies TRT and FRT.

| Commodity | 2005 | | 2006 | |
|-----------|-------|----------|-------|----------|
| | Price | Quantity | Price | Quantity |
| A | 4 | 40 | 5 | 50 |
| B | 8 | 64 | 9 | 80 |
| C | 10 | 70 | 10 | 70 |
| D | 2 | 10 | 4 | 16 |

22. Define probability. Explain the uses and limitations of probability.