551151 **DCBC412**

Reg. No. | | | | | | | | | |



**IV Semester B.Com. (Regular) Degree Examination, June/July - 2026**

**COMMERCE**

**Quantitative Analysis For Business Decisions-II**

**(SEP Scheme)**

**Time : 3 Hours** **Maximum Marks : 80**

***Instructions to Candidates:***

Answer should be written in English.

## SECTION - A

**Answer any FIVE of the following sub-questions. Each sub-question carries 2 marks. (5×2=10)**

**1.** a) State any two types of correlation.

b) Give the meaning of probable error.

c) Calculate the regression Co-efficient if $\gamma = 0.8$, $\sigma_x = 5$ and $\sigma_y = 7$.

d) What do you mean by regression?

e) Define time series.

f) What is meant by extra polation?

g) Give the meaning of level of significance.

h) What is positive association?

## SECTION - B

**Answer any FOUR of the following questions. Each question carries 5 marks. (4×5=20)**

**2.** The following data provides the ranks of Ten students in two subjects

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Statistics: | 9 | 6 | 1 | 2 | 3 | 7 | 10 | 5 | 8 | 4 |
| Maths : | 1 | 5 | 8 | 2 | 6 | 7 | 10 | 4 | 9 | 3 |

Calculate rank correlation.

**[P.T.O.**

3. Given that the means of X and Y are 65 and 67, their standard deviations are 2.5 and 3.5 respectively and the coefficient of correlation between them is 0.8. Obtain the best estimate of X when Y= 70.

4. Calculate trend values assuming 5 yearly moving average from the following data.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Year** : | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| **Value** : | 53 | 79 | 76 | 66 | 69 | 94 |
| **Year** : | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| **Value** : | 105 | 87 | 79 | 104 | 97 | 72 |



5. Estimate the missing data from the following using binomial expansion method.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Year** : | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| **Exports (in Crores):** | 2100 | 2300 | ? | 2800 | 3000 | 3500 |

6. In a set of random numbers the digit 0, 1, 2, .... 9 were found to have the following frequencies.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Digit** : | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Frequencies :** | 43 | 32 | 38 | 27 | 38 | 52 | 36 | 31 | 39 | 24 |

Test whether digits were equally distributed in equal numbers in the tables from which they were choosen. The degree of freedom at 5% level of significance is 16.92.

7. Extrapolate the sales for the year 2023

| | | | | | |
|---|---|---|---|---|---|
| **Year** : | 2018 | 2019 | 2020 | 2021 | 2022 |
| **Sales (in lakshs):** | 200 | 300 | 600 | 900 | 1500 |

## SECTION - C

**Answer any THREE of the following questions. Each question carries 15 marks.** **(3×15=45)**

8. Calculate Co-efficient of correlation between percentage of pass and failures from the following data. Also obtain probable error.

| | | | | | | |
|---|---|---|---|---|---|---|
| **No. of Students** : | 80 | 60 | 90 | 70 | 50 | 40 |
| **No. of Students Passed :** | 48 | 30 | 45 | 56 | 45 | 30 |

9. Given the following values of X and Y.

| | | | | | | |
|---|---|---|---|---|---|---|
| **X** : | 3 | 5 | 6 | 8 | 9 | 11 |
| **Y** : | 2 | 3 | 4 | 6 | 5 | 8 |

Find the regression equation of i) x on y and y on X and estimate x when y is 12, and y when x is 14.

10. For the following table:

    a) Fit a straight line trend by the method of least squares.

    b) Estimate the income for the year 2023.

| **Year** | : | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|
| **Income(In Rs. 000)** | : | 300 | 700 | 600 | 800 | 900 | 700 | 1000 |

11. Following are the marks obtained by 190 students in a certain examination . Find the number of students who secured less than 45 marks.

| **Marks** | : | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|---|---|---|---|---|---|---|
| **No. of Students** | : | 31 | 42 | 51 | 35 | 31 |

12. A survey among women was conducted to study the family life. The observations are as follows.

| | **Happy** | **Not Happy** | **Total** |
|---|---|---|---|
| Educated | 70 | 30 | 100 |
| Not Educated | 60 | 40 | 100 |
| **Total** | **130** | **70** | **200** |

Test whether there is any association between family and education. The degree of freedom at 5% level of significance is 3.84.

## SECTION - D

**Answer the following. This question carries 5 marks.** **(1×5=5)**

13. Fit a straight line trend with imaginary figures and show it graphically.