371004

DCBB213/DCBA213

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

# II Semester B.B.A. Degree Examination, June/July - 2025

## BUSINESS ADMINISTRATION

## Statistics for Business Decisions - II

## (CBCS SEP Scheme)

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

***Instructions to Candidates:***

*All answers should be written in English only.*

### SECTION - A

**Answer any Five of the following questions. Each question carries Two marks.** **(5×2=10)**

1. a) What is Regression?
   b) What is Irregular Variation?
   c) Explain Extrapolation.
   d) What is NMR?
   e) What do you mean by product control?
   f) Mention the time series models.
   g) List out the Fertility rates.
   h) What does a p-chart depict?

### SECTION - B

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

2. Obtain Regression equation, from the following data, and estimate the age of brother when sister's age is 33.
   Average age of Brother 25 years.
   Average age of sister 22 years.
   Standard deviations of brother and Sister ages 4 and 5 respectively.
   Coefficient of correlation between the ages of brother and sister 0.8.

[P.T.O.

3. Calculate the trend values by five yearly moving average method.

| Year : | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Production: in Cr. Rs.** | 12 | 14 | 18 | 24 | 22 | 20 | 16 | 25 | 26 | 34 | 31 |

4. Show the derivation of $(y-1)^4 = 0$ algebraically.

5. Listout any five uses of SQC.

6. Calculate Karl Pearson's coefficient of correlation from the following data:

| | | | | | |
|---|---|---|---|---|---|
| A: | 30 | 60 | 18 | 12 | 40 |
| B: | 36 | 48 | 12 | 24 | 50 |

7. Compute GRR and NRR from the data given below:

| Age (Years) | No of Women Women ('000) | No. of Female births to Women in age group | Survival Rate |
|---|---|---|---|
| 15-19 | 16.0 | 140 | 0.969 |
| 20-24 | 16.4 | 1130 | 0.967 |
| 25-29 | 15.8 | 980 | 0.963 |
| 30-34 | 15.2 | 670 | 0.958 |
| 35-39 | 14.8 | 460 | 0.952 |
| 40-44 | 15.0 | 150 | 0.942 |
| 45-49 | 14.5 | 80 | 0.928 |

## SECTION - C

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

8. From the following data show regression equations and predict the value of Y when X = 9.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **X:** | 3 | 6 | 5 | 4 | 7 | 2 | 8 | 1 |
| **Y:** | 3 | 2 | 3 | 5 | 3 | 6 | 6 | 4 |

9. Fit a straight line trend by the method of least squares, obtain trend values and show them graphically.

| Year: | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|
| Profit in '000 Rs. : | 12 | 10 | 14 | 11 | 13 | 15 | 16 |

10. The following are annual premiums charged by an insurance company for a policy of Rs. 1,000. Calculate premium payable at the age of 26 using Newton Method of Advancing Differences.

| Age in years : | 20 | 25 | 30 | 35 | 40 |
|---|---|---|---|---|---|
| Premium (Rs.): | 23 | 26 | 30 | 35 | 42 |

11. Explain briefly the control chart Techniques used in case of attributes.

12. From given data make a comment on crude and standardised death rules for town A and town B.

| Age Group | Town A Population (in '000) | Town A Specific Death Rate | Town B Population (in '000) | Town B Specific Death Rate | Standard Population (in '000) |
|---|---|---|---|---|---|
| 0-5 | 6 | 40 | 7 | 40 | 4 |
| 5-25 | 30 | 18 | 40 | 18 | 34 |
| 25-45 | 24 | 12 | 20 | 13 | 25 |
| 45-60 | 12 | 25 | 8 | 20 | 11 |
| Above-60 | 8 | 34 | 5 | 44 | 6 |

## SECTION - D

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

13. Differentiate between additive and multiplicative time series models.