| Roll No: |
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| Date: |

# St. Claret College

## Autonomous, Bengaluru

**UG END SEMESTER EXAMINATION- MAY 2026**

**B.COM - II SEMESTER**

**BC 2424: BUSINESS DATA ANALYSIS**

**TIME: 3 hours** 12 **MAX. MARKS: 80**

**This paper contains FOUR printed pages and FOUR parts**

**Instructions:**

1. **Verify and ensure that the question paper is completely printed.**
2. **Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.**
3. **Students must check the course title and course code before answering the questions.**

### PART-A

**Answer ALL questions. Each answer carries ONE mark.** **[ 10 x 1 = 10]**

1. Statistics mainly deals with
   a) Individual data only b) Numerical data
   c) Qualitative opinions only d) Random guesses

2. Index number measures
   a) Exact value b) Average c) Frequency d) Change over time

3. A pie chart represents data where 40 students prefer B. Com from the total frequency of 200 students. What is the central angle for this category?
   a) 72° b) 40° c) 50° d) 180°

4. Given the regression equation Y = 6 + 3X, what is the predicted value of X when Y = 12?
   a) -46 b) 2 c) -2 d) 46

5. Which measure is most affected by extreme values
   a) Mode b) Median c) Mean d) Correlation

6. If Mean = 30 and Standard Deviation = 5, the Coefficient of Variation will be?
   a) 6% b) 60% c) 25% d) 17%

7. The range of correlation coefficient always lies between?
   a) -2 to +2 b) 0 to 1 c) -1 to +1 d) $-\infty$ to $+\infty$

8. If the regression coefficients $b_{xy}$=0.5, $b_{yx}$=0.8, what is the value of r is?
   a) 0.13 b) 0.40 c) 0.2 d) 0.63

9. The value of probability lies between ____&____
   a) -1 to 1 b) 0 to 1 c) $-\infty$ to $+\infty$ d) 1 to 10

10. Two events that cannot occur together are
    a) Independent b) Complementary c) Mutually exclusive d) Exhaustive

## PART-B

**Answer any THREE questions. Each answer carries EIGHT marks** **[ 3 x 8 = 24]**

11. Describe the different types of data series used in statistics with suitable examples.
12. Draw a histogram from the following data and locate the mode graphically.

| Expenditure | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|---|---|---|---|---|---|---|---|
| No. of Family | 53 | 60 | 98 | 110 | 86 | 70 | 45 |

13. Estimate the coefficient of variation for the data given below.

| Salary (in '000) | 25 | 35 | 45 | 55 | 65 | 75 | 85 |
|---|---|---|---|---|---|---|---|
| No. of Employees | 17 | 22 | 34 | 28 | 20 | 13 | 8 |

14. Calculate the Karl Pearson's correlation coefficient from the following data.

| X | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
|---|---|---|---|---|---|---|---|---|
| Y | 50 | 56 | 58 | 62 | 65 | 68 | 72 | 75 |

15. From a well-shuffled standard deck, one card is drawn at random. Find the probability that the card drawn is:
    a) A King card b) A Spade card
    b) A Red card d) A card which is either a Heart or a Queen

## PART – C

**Answer any THREE questions. Each answer carries TWELVE marks.** **[3 x 12 = 36]**

16. Calculate Mean, Median and Mode from the data given below.

| Value | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
|---|---|---|---|---|---|
| Frequency | 6 | 10 | 18 | 12 | 4 |

17. The income and expenses pattern of 8 families are given below. Form the regression lines of income on expenses and expenses on income. Also estimate the income when expenses are Rs. 48000.

| Income (in '000) | 18 | 28 | 24 | 28 | 30 | 34 | 38 | 42 |
|---|---|---|---|---|---|---|---|---|
| Expenses (in '000) | 12 | 15 | 18 | 22 | 25 | 28 | 32 | 36 |

18. Estimate the Consumer Price Index using Paasche's ($Q_1$) and Laspayre's ($Q_0$) weighted aggregated methods from the following data relates to prices and quantities of four commodities.

| Commodity | Base Price | Base Quantity | Current Price | Current Quantity |
|---|---|---|---|---|
| Pepper | 125 | 40 | 230 | 50 |
| Cardamom | 118 | 60 | 220 | 70 |
| Cashews | 112 | 80 | 215 | 90 |
| Edible Oil | 110 | 50 | 212 | 65 |

19. Fit a trend line using the method of least square and estimate the likely production for the year 2025. Also prove that $\sum (Y-Y_c) = 0$

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| Sales (in Cr.) | 62 | 73 | 75 | 81 | 86 | 90 | 97 |

20. A bag contains 72 plastic coins numbered from 1 to 72. One coin is drawn at random. Find the probability that the number on the coin drawn is:
    i. A multiple of 6 or 9
    ii. A multiple of 8 or 12

## PART – D

**Answer the following question. It carries TEN marks** **[1 x 10 = 10]**

21. Dr. Sandheep, a professor at St. Claret University conducted a survey among 50 students to Understand their preferred mode of learning. Each student was asked to choose one of the following options:
    - Online Classes
    - Offline Classes
    - Hybrid (Both Online & Offline)
    - Self-Study

    The responses collected from 50 students are given below.

    Online, Offline, Hybrid, Online, Self-Study, Offline, Online, Hybrid, Online, Offline, Self-Study, Hybrid, Online, Offline, Online, Hybrid, Self-Study, Offline, Hybrid, Online, Online, Offline, Hybrid, Self-Study, Online, Offline, Hybrid, Online, Self-Study, Offline, Online, Hybrid, Offline, Online, Online, Hybrid, Self-Study, Offline, Online, Hybrid, Self-Study, Online, Offline, Hybrid, Online, Offline, Self-Study, Hybrid, Online, Offline

    You are asked to analyse the case and;

    i. Prepare a frequency table showing the preference of all 50 students using tally marks.
    ii. Find the percentage share of each learning mode preferred by the students.
    iii. Construct a pie chart to visualize the proportion of each preferred mode of learning.
    iv. Interpret the result of the survey conducted by Dr. Sandheep

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