



## Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)  
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC  
Coimbatore-641043, Tamil Nadu, India

### Bachelor's Degree Examination - May 2025 II Semester

Time : 3 Hours  
Max. Marks : 100

Class : I UG  
Major : BBA

#### 24BBAC05 Business Statistics and Logic

#### Course Outcomes:

- CO1: Enhance Knowledge on the concept of statistics and the way of mobilizing data  
CO2: Gain knowledge on the various methods of presenting data  
CO3: Acquire skills in calculating basic statistical parameters independently  
CO4: Assess the way of measuring the inter-relationship among variables  
CO5 Interpret the calculated statistical indicators based on the acquired knowledge

#### Part A

10 x 1 = 10

#### Choose the Correct Answer

- Which type of data is collected first hand by a researcher through surveys or experiments? CO1K1  
a. Secondary Data  
b. Primary Data  
c. Classified Data  
d. Tabulated Data
- Which diagram is best suited to represent the proportion of different categories in a dataset? CO2K2  
a. Histogram  
b. Pie Diagram  
c. Frequency Polygon  
d. Cumulative Frequency Curve
- Which method is commonly used to measure rank correlation? CO4K2  
a. Karl Pearson's Method  
b. Spearman's Method  
c. Concurrent Deviation Method  
d. Least Squares Method
- Which value of Karl Pearson's correlation coefficient indicates a perfect negative correlation? CO4K1  
a. 0  
b. +1  
c. -1  
d. Between 0 and +1
- Which statistical method describes the relationship between two variables but does not imply causation? CO4K2  
a. Regression  
b. Correlation  
c. Time Series  
d. Probability
- What does regression analysis primarily help in? CO3K3  
a. Measuring relationship strength  
b. Predicting future values  
c. Identifying outliers  
d. Finding averages
- Which index number is known as the ideal index because it satisfies both the time reversal and factor reversal tests? CO5K2  
a. Laspeyres Index  
b. Paasche Index  
c. Fisher's Index  
d. Simple Aggregative Index
- Which method of trend determination fits a straight-line equation to historical data? CO3K3  
a. Graphical Method  
b. Moving Average Method  
c. Least Squares Method.  
d. Index Number Method
- In a certain code language, "STAR" is written as "UVCT". How is "MOON" written in that code? CO3K3  
a. OQPP  
b. PQQP  
c. PQQR  
d. OPPQ
- Find the missing number in the series: CO3K4  
2, 6, 12, 20, 30, ?  
a. 40  
b. 42  
c. 50  
d. 60

**Part B****5 x 6 = 30****Answer ALL questions****Each answer should not exceed 400 words or two pages**

11.a. Distinguish between Primary and Secondary Data. CO1K2

(or)

11.b. Explain are the Characteristics of statistics? CO1K2

12.a. Calculate Karl Pearson's Coefficient of Correlation for the following data and interpret the result. CO3K3

X	10	20	30	40	50
Y	5	15	25	35	45

(or)

12.b. Calculate Spearman's Rank Correlation Coefficient for the following data and interpret the result. CO3K3

X (Ranks)	1	2	3	4	5	6	7
Y (Ranks)	3	1	4	2	6	5	7

13.a. Differentiate between Correlation and Regression Analysis. Explain their significance in statistical analysis. CO4K4

(or)

13.b. Explain the various uses of Correlation and Regression Analysis in business and economics. Provide real-life examples to support your answer. CO4K4

14.a. What are Index Numbers? Discuss their types and applications in economic and business analysis. Also, explain how index numbers are constructed with an example. CO5K2

(or)

14.b. Differentiate between Laspeyres, Paasche, and Fisher's Index Numbers. Which one is considered the ideal index number and why? CO5K3

15.a. Pointing to a woman, Ramesh said, "She is the wife of my mother's only son's father-in-law's only daughter." How is the woman related to Ramesh? CO3K4

Options:

- A) Wife
- B) Sister-in-law
- C) Sister
- D) Mother

(or)

15.b. Aman starts from his home and walks 10 km towards the east. He then turns left and walks 5 km. After that, he turns left again and walks 10 km. Finally, he takes another left turn and walks 15 km. How far and in which direction is he from his starting point? CO3K4

Options:

- A) 10 km South
- B) 5 km North
- C) 15 km South
- D) 10 km North

**Part C****5 x 12 = 60****Answer ALL questions****Each answer should not exceed 800 words or four pages**

16.a. Briefly explain the scope and limitations of statistics. CO1K2

(or)

16.b. Explain in detail about the classification and tabulation of data. CO2K3

17.a. Calculate Karl Pearson's coefficient of correlation between age and playing habits from the data given below. Also calculate probable error and comment on the value. CO3K3

Age	20	21	22	23	24	25
No. of students	500	400	300	240	200	160
Regular players	400	300	180	96	60	24

(or)

- 17.b. The following data shows the profit (in Rs. crores) and advertisement expenses (in Rs. lakhs) of a company over 8 years. Calculate the correlation using the Concurrent Deviation Method. CO3K3

Year	Profit (Rs. Cr)	Ad Expenses (Rs. Lakh)
1	10	5
2	15	7
3	18	8
4	20	9
5	22	12
6	24	14
7	28	16
8	30	18

Determine if there is a positive or negative correlation between profit and advertisement expenses.

- 18.a. The following data represents the sales (Y in Rs.'000s) and advertising expenditure (X in Rs.'000s) of a company over 6 months. CO4K4

X (Ad Exp)	2	4	6	8	10	12
Y (Sales)	5	9	12	18	24	30

Find the regression equation of Y on X and predict sales when advertising expenditure is Rs.15,000.

(or)

- 18.b. What are the limitations of Regression Analysis? How can these limitations affect decision-making? CO4K4

- 19.a. Fit a trend line to the following data by the freehand method. CO5K3

Year	Production of steel (million tons)	Year	Production of steel (million tons)
2001	20	2006	25
2002	22	2007	23
2003	24	2008	26
2004	21	2009	25
2005	23		

(or)

- 19.b. Using the data below, calculate Laspeyres, Paasche, and Fisher's Index Numbers: CO5K4

Commodity	Base Year Price (Rs.)	Base Year Quantity	Current Year Price (Rs.)	Current Year Quantity
A	10	50	12	60
B	15	40	18	50
C	20	30	22	35

- 20.a. Ravi starts from point A and walks 10 km east, then turns left and walks 5 km, then turns left again and walks 10 km. Finally, he turns right and walks 7 km. How far and in which direction is he from the starting point? CO3K4

(or)

- 20.b. Five people—A, B, C, D, and E—are sitting in a row.  
 A is sitting to the right of B.  
 C is sitting to the left of D but to the right of A.  
 E is sitting at one of the ends.  
 Who is sitting in the middle? CO3K4

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