Paper id: 252641

Roll No: | | | | | | | | | | | | |

BBA
(SEM II) THEORY EXAMINATION 2024-25
BASICS OF STATISTICS

TIME: 3 HRS   **M.MARKS: 70**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **02 x 7 = 14**

Q no.	Question	CO	Level
a.	Discuss the different methods of collecting primary data.	1	K2
b.	If N=10, Mean= 12, $\sum X^2$=1530, find the coefficient of variation.	2	K3
c.	The coefficient of correlation between two variables X and Y is 0.48. The covariance is 36. The variance of X is 16. Find the standard deviation of Y.	3	K3
d.	Differentiate between Correlation and Regression.	3	K3
e.	What are the four components of a time series?	4	K2
f.	Distinguish between additive and multiplicative models.	4	K3
g.	Differentiate between Laspeyre's and Paasche's index numbers.	5	K3

SECTION B

2.   **Attempt any *three* of the following:**   **07 x 3 = 21**

Q no.	Question	CO	Level
a.	Explain the importance of Statistics with respect to business and industry.	1	K2
b.	Compare mean deviation and standard deviation as measures of variation. Which of the two is a better measure? Why?	2	K3
c.	Explain the concept of regression and point out its usefulness in dealing with business problems.	3	K3
d.	"For constructing index numbers, the best method on theoretical ground is not the best method from practical point of view. "Discuss.	4	K4
e.	What are the objectives of time series analysis? Why do we need to separate out the trend movements from the periodic fluctuations? Explain.	5	K4

SECTION C

3.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	State the different methods used for diagrammatic representation of statistical data and indicate briefly the advantages and disadvantages of each one of them.	1	K4

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b.	Draw a pie diagram to represent the following data of proposed expenditure by a state Government for the year 2018-2019.	1	K6

Items	Agriculture	Industries	Health & Education	Miscellaneous
Proposed expenditure (in million Rs.)	4200	1500	1000	500

4. Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	What do you understand by central tendency? Under what conditions is median more suitable than other measures of central tendency?	2	K3
b.	Find the missing information in the following table:	2	K5

	Groups			Combined
	A	B	C	
Number	10	8	-	24
Mean	20	-	6	15
Geometric Mean	10	7	-	8.397

(***Note: Provide Log table***)

5. Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Create a rank correlation analysis for the following data and interpret the result. Ranks given by two judges (X and Y) to 5 contestants	3	K6

Contestant	A	B	C	D	E
X	1	2	3	4	5
Y	2	1	4	3	5

b.	A company wants to study the relationship between its advertising expenditure (in $'000) and monthly sales (in $'000). The data for 6 months is:	3	K6

Advertising (X)	10	20	30	40	50	60
Sales (Y)	40	60	70	85	100	115

i) Calculate the Karl Pearson's coefficient of correlation.
ii) Interpret the result.
iii) Based on your result, should the company continue increasing advertising?

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6.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	A textile company tracks its quarterly sales (in ₹ lakhs) over two years as follows: Quarter / Q1 / Q2 / Q3 / Q4 Year 1 / 120 / 100 / 80 / 140 Year 2 / 160 / 140 / 110 / 190 The management believes that the business has a seasonal pattern and wants to forecast sales for Year 3 using the multiplicative model. Using the average trend and seasonal indices, forecast sales for all 4 quarters of Year 3. Also, evaluate whether the multiplicative model is appropriate for this dataset.	4	K6
b.	Evaluate the limitations of using the Moving Average method for forecasting and suggest when it may lead to misleading conclusions.	4	K5

The quarterly sales table:

Quarter	Q1	Q2	Q3	Q4
Year 1	120	100	80	140
Year 2	160	140	110	190

7.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Evaluate the Fisher's Ideal Index as a measure of price change. Does it overcome the drawbacks of Laspeyre's and Paasche's index? Support your answer with reasons.	5	K5
b.	Design a simple index number using the Family Budget Method for the following data and interpret the result:	5	K6

Item	Price in Base Year	Price in Current Year	Weight (Expenditure %)
Food	100	120	50
Clothing	80	100	30
Rent	200	240	20