

SHREE NARAYANA COLLEGE OF COMMERCE

AHMEDABAD

Name of the Department :

Subject : Business Statistics

Class & Semester : BBA (Hons.) Semester – III

Faculty Name : Prof. Mehul Purohit

ASSIGNMENT (2026–2027)

SECTION – 1 (UNIT – 1)

Q.1 Explain the meaning, definition, scope and limitations of Statistics. Also explain the different levels of measurement (Nominal, Ordinal, Interval and Ratio) with suitable examples.

Q.2 Determine the class interval in which the Mean, Median and Mode lie for the following distribution.

Class Interval	0–5	5–10	10–15	15–20	20–25	25–30
Frequency	18	26	42	36	54	24

Q.3 Find the Coefficient of Quartile Deviation for the following distribution.

Class Interval	10–19	20–29	30–39	40–49	50–59	60–69
Cumulative Frequency	12	35	78	125	168	200

Q.4 The following data relate to the salaries of workers in two companies. Using the Coefficient of Variation, determine which company has more consistent salaries.

Company	Workers	Mean Salary	Std. Deviation
A	450	18,500	2,100
B	500	17,800	1,750

Q.5 The marks obtained by 60 students are given below. Calculate the Arithmetic Mean, Median and Mode.

Marks	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	5	8	16	18	9	4

SECTION – 2 (UNIT – 2)

Q.1 Calculate Karl Pearson's Coefficient of Correlation for the following data.

X	15	18	20	22	25	28	30	35
Y	10	12	15	17	18	20	24	27

Q.2 Calculate Spearman's Rank Correlation Coefficient for the given data.

Student	A	B	C	D	E	F	G	H
Math Rank	2	5	1	8	4	7	6	3
Statistics Rank	1	6	2	7	5	8	4	3

Q.3 The following results are obtained: $n=30$, $\Sigma X=360$, $\Sigma Y=420$, $\Sigma X^2=4820$, $\Sigma Y^2=6540$, $\Sigma XY=5560$. Calculate Karl Pearson's Coefficient of Correlation.

Q.4 If $r_{12}=0.72$, $r_{13}=0.58$ and $r_{23}=0.46$, find the Partial Correlation Coefficient between X_1 and X_2 after eliminating the linear effect of X_3 .

Q.5 If $r_{12}=0.68$, $r_{13}=0.54$ and $r_{23}=0.42$, find the Multiple Correlation Coefficient between X_1 and X_3 .

SECTION – 3 (UNIT – 3)

Q.1 Find the Regression Line of Y on X for the given bivariate frequency distribution.

X / Y	20–30	30–40	40–50	Total
10–20	4	6	2	12
20–30	5	8	7	20
30–40	3	6	9	18
Total	12	20	18	50

Q.2 The regression equations are $y = 48 + 0.75x$ and $x = 16 + 0.60y$. Find (i) Mean values of X and Y (ii) Regression coefficients (iii) Correlation coefficient.

Q.3 In a random sample of size 35, $b_{yx}=0.80$ and $S_x^2/S_y^2=0.5625$. Find r and b_{xy} .

Q.4 Given that the coefficient of correlation between X and Y is 0.75 and the standard deviations are $S_x = 8$ and $S_y = 6$. Find the regression coefficients b_{yx} and b_{xy} .

Q.5 Sales (₹ lakh): 25, 30, 35, 40, 45, 50 and Advertisement (₹ lakh): 8, 10, 12, 15, 17, 20. Obtain the regression equations and estimate sales when Advertisement = ₹16 lakh.

SECTION – 4 (UNIT – 4)

Q.1 Fit a straight-line trend by the Method of Least Squares from the following data and estimate the trend value for the year 2026.

Year	2020	2021	2022	2023	2024
Sales (₹ Lakh)	52	56	61	65	70

Q.2 Determine the Trend Values by the 3-Year Moving Average Method from the following data.

Year	2018	2019	2020	2021	2022	2023	2024
Sales ('000 Units)	80	86	84	90	96	94	100

Q.3 Calculate the Seasonal Indices by the Simple Average Method from the following quarterly sales data.

Year	Quarter I	Quarter II	Quarter III	Quarter IV
2021	120	150	180	170

Year	Quarter I	Quarter II	Quarter III	Quarter IV
2022	130	160	190	180
2023	140	170	200	190

Q.4 Fit a straight-line trend by the Method of Least Squares from the following data and estimate the sales for the year 2024.

Year	2019	2020	2021	2022	2023
Sales ('000 Units)	42	48	53	57	63

Q.5 Explain the Components of Time Series. Distinguish between Secular Trend and Seasonal Variation and Cyclical Variation and Irregular Variation with suitable business examples.

SECTION – 5 (REVISION & PRACTICE)

A. Match the Following

Column A	Column B
1. Mean	a. Prediction
2. Karl Pearson's Correlation	b. Average
3. Spearman's Rank Correlation	c. Ranked Data
4. Regression	d. Degree of Relationship
5. Moving Average	e. Trend Measurement
6. Seasonal Variation	f. Within One Year
7. Cyclical Variation	g. Business Cycle
8. Irregular Variation	h. Unpredictable Change
9. Quartile Deviation	i. Measure of Dispersion
10. Least Squares Method	j. Trend Line