Graphic Era HILL UNIVERSITY
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End Term {Trimester-I} Examination November 2025

Roll no.....

Name of the Course and semester: MBA
Name of the Paper: **BUSINESS ANALYTICS - I**
Paper Code: **MBA 107**

Time: 3 hour | Maximum Marks: 100

Note:

(i) This question paper contains two Sections-Section A and B
(ii) Both Sections are compulsory
(iii) Answer any two sub questions from a, b & c in each main question of Section A. Each sub question carries 10 marks.
(iv) Section B, consisting of a case study, is compulsory. It is of 40 Marks.

Section A

Q1. (2X10=20 Marks)

a. Explain the difference between Descriptive, Diagnostic, Predictive, and Prescriptive Analytics. (CO1)

b. Define statistics and explain its importance and scope in business and management decision-making. (CO1)

c. List and explain various data sources (Internal, External, Primary, and Secondary). Provide one example of each in a business context. (CO2)

Q2. (2X10=20 Marks)

a. The following data represent the distribution of marks obtained by 8 MBA students in a statistics test:

30, 35, 40, 45, 50, 55, 60, 70

i. Calculate mean and median.
ii. Determine whether the distribution is positively or negatively skewed using Karl Pearson's method.? (CO 3)

b. What are the characteristics of a normal distribution? Why is it important in business statistics? (CO2)

c. A company analyzed the monthly sales (in ₹ lakh) of two sales executives over 6 months:

Executive 1	40	50	45	55	60	70
Executive 2	35	40	42	45	48	55

i. Compute Mean and Standard Deviation for both.
ii. Using the coefficient of variation (CV), determine which executive's performance is more consistent.
iii. Based on your analysis, whom would you recommend for promotion and why?

(CO5)

Q3. (2X10=20 Marks)

a. Discuss the importance of measures of dispersion in business decision-making. Why is it not sufficient to rely only on measures of central tendency? (CO2)

b. What is the difference between mutually exclusive and independent events? Give one example of each from a management context. (CO4)

c. A company produces 1000 units of a product. Out of these, 950 are non-defective and 50 are defective. A unit is chosen at random.

i. What is the probability that the unit is non-defective?
ii. If two units are selected at random (without replacement); find the probability that both are non-

defective.

iii. Explain how such probability calculations help in quality control and decision-making. (CO4)

Section B

Q4. Case Study **(CO 4, 5)** **(40 Marks)**

Zenith Consumer Products Pvt. Ltd. is a mid-sized Indian FMCG company specializing in personal care products. Over the past few years, the marketing department has consistently increased advertising expenditure to strengthen its brand presence in North India.

The management now wants to determine whether the advertising expenditure (in ₹ lakh) significantly affects sales revenue (in ₹ lakh) and to forecast future sales based on planned advertising budgets.

They have provided the following data for the past 8 months:

Month	Advertising Expenditure (X) ₹ lakh	Sales Revenue (Y) ₹ lakh
1	10	65
2	12	68
3	13	72
4	15	74
5	16	78
6	18	85
7	20	90
8	22	94

Questions:

Q1. Using the given data, compute the following:

(i) The mean of X and Y.

(ii) The regression coefficients (bxy and byx).

Q2. Write the regression equation of Sales (Y) on Advertising Expenditure (X).

Q3. Estimate the expected sales revenue if the company decides to spend ₹ 19 lakh on advertising next month.

Q4. Compute the coefficient of correlation (r) between X and Y and also Interpret the nature and strength of the relationship.

Q5. Based on your regression model, provide two managerial recommendations for the Marketing Head regarding advertising budget allocation.