Roll No……

GL BAJAJ Institute of Management & Research Greater Noida

FIND YOUR SPARK

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2025-27)
END TERM EXAMINATION (TERM -I)

Subject Name: **Statistics for Decision Making** Time: **02.00 hrs**

Sub. Code: **PG104** Max Marks: **40**

Note: All questions are compulsory. Section A carries 12 marks: 6 questions of 2 marks each, Section B carries 18 marks having 3 questions (with internal choice question in each) of 6 marks each and Section C carries 10 marks one Case Study having 2 questions of 5 marks each.

SECTION - A

Attempt all questions. All questions are compulsory. **2×6 = 12 Marks**

Questions	CO	Bloom's Level
Q. 1: (A). Explain the limitations of statistics in business management, giving suitable examples. **Q. 1: (B).** Define and differentiate between Nominal, Ordinal, Interval and Ratio Scale with example **Q. 1: (C).** Discuss primary and secondary data and their significance in business research. **Q. 1: (D).** Why Arithmetic Mean is supposed to be the best measure of central tendency? **Q. 1: (E).** Find the probability of getting a sum of 6 in a simultaneous throw of two dice. **Q. 1: (F).** Explain random experiment, sample space, simple event and mutually exclusive event.	CO-1 CO-2	L2 L3

SECTION – B

All questions are compulsory (Each question has an internal choice. Attempt anyone (either A or B) from the internal choice) **6 x 3 = 18 Marks**

Questions	CO	Bloom's Level
Q. 2: (A). 120 employees of a company have completed the following number of training hours during the last quarter: Training Hours: 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 No. of Employee: 5 | 10 | 20 | 35 | 25 | 15 | 10 Calculate the Arithmetic Mean and Median of the data and explain any difference, if observed. **Or** **Q. 2: (B).** The marks obtained by students in a competitive examination are recorded in the following data set: Marks: 0-10 No. of Students: 10	CO-3	L4

10-20	15		
20-30	20		
30-40	25		
40-50	35		
50-60	15		
60-70	16		

Calculate the coefficient of variation (CV) and provide a brief interpretation regarding the degree of variability in student performance.

Q. 3: (A). The following data relates to the performance scores of 10 employees in two different skill tests. Some scores are tied (repeated ranks). Calculate the Spearman's rank correlation coefficient and interpret the result: | CO-4 | L4

Employee	Skill Test A	Skill Test B
1	85	78
2	90	82
3	85	80
4	92	88
5	88	84
6	80	78
7	78	75
8	90	88
9	85	82
10	92	90

Or

Q. 3: (B). The following tabled data shows the arithmetic mean and standard deviation of the advertising expenditure and sales of a company for the year 2003-2004:

Statistical Measures	Advertising Expenditure (Rs Lakhs)	Sales (Rs Lakhs)
Arithmetic Mean	25	120
Standard Deviation	4	15

The correlation coefficient between the two variables is 0.75.

Questions

1. Fit the two regression equations.
2. Estimate the sales when advertising expenditure is Rs 30 lakhs.

Q. 4: (A). For a binomial distribution, the mean and variance are 6 and 3 respectively. Find the probability of: | CO-5 | L5

i. Exactly 3 successes
ii. Less than 3 successes
iii. At least 3 successes

Or

Q. 4: (B). Explain the concepts of population and sampling, along with the different types of sampling methods, in the context of business research. Give a practical example showing how a company can use these methods to collect data for decision-making.

SECTION - C

Read the case and answer the questions **5×02 = 10 Marks**

<table>
<tr><th>Questions</th><th>CO</th><th>Bloom's Level</th></tr>
<tr><td>Q. 5: Case Study: TechNova Ltd., a prominent smartphone manufacturer, wants to forecast future sales to plan production and inventory. The company has recorded its annual sales (in thousands of units) over the past 6 years, as shown below:

<table>
<tr><td>Year</td><td>2018</td><td>2020</td><td>2022</td><td>2024</td><td>2026</td><td>2028</td></tr>
<tr><td>Sales</td><td>40</td><td>45</td><td>50</td><td>55</td><td>60</td><td>65</td></tr>
</table>
The management has requested the Business Analyst to use the Least Squares Method of Trend Analysis to forecast sales for the years 2030 and 2032.

Questions:
Q. 5: (A). Formulate the linear trend equation for smartphone sales using the Least Squares Method.
Q. 5: (B). Estimate the sales for 2030 and 2032 using the trend equation.</td><td>CO-6</td><td>L5</td></tr>
</table>

Kindly fill the total marks allocated to each CO's in the table below:

COs	Question No.	Marks Allocated
CO1	Q-1 A,B,C	6 marks
CO2	Q-1 D,E,F	6 marks
CO3	Q-2	6 marks
CO4	Q-3	6 marks
CO5	Q-4	6 marks
CO6	Q-5	10 marks

(Please ensure the conformity of the CO wise marks allocation as per your TLEP.)

Blooms Taxonomy Levels given below for your ready reference:

L1= Remembering
L2= Understanding
L3= Apply
L4= Analyze
L5= Evaluate
L6= Create