

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

**POST GRADUATE DIPLOMA IN MANAGEMENT (2024-25)  
END TERM EXAMINATION (TERM - I)**

Subject Name: **Statistics for Decision Making**

Time: **02.00 Hrs.**

Sub. Code: **PG14**

Max Marks: **40**

**Note:**

**All questions are compulsory. Section A carries 5 marks: 5 questions of 1 marks each, Section B carries 21 marks having 3 questions (with internal choice) of 7 marks each and Section C carries 14 marks one Case Study having 2 questions of 7 marks each.**

**SECTION - A**

Attempt all questions. All questions are compulsory.

**1×5 = 5 Marks**

**Q. 1: (A).** Define and differentiate between Nominal, Ordinal, Interval and Ratio Scale with example.

**Q. 1: (B).** The arithmetic mean of 100 observations was found to be 30. At the time of calculation, two items were wrongly taken as 32 and 12 instead of 23 and 11, Calculate the correct mean.

**Q. 1: (C)** The median of a series is 10. Two additional observations 7 and 20 are added to the series What will be the median of the new series?

**Q. 1: (D).** Find the probability of getting a sum of 6 in a simultaneous throw of two dice.

**Q. 1: (E).** Discuss some applications of regression analysis in Business?

**SECTION – B**

All questions are compulsory (Each question have an internal choice. Attempt any one (either A or B) from the internal choice)

**7 x 3 = 21 Marks**

**Q. 2: (A).** From the following data set of competitive examination calculate the following

$Q_1, D_4, P_{90}$  Partition Values: Also comment on the results

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of Students	10	15	20	25	35	15	16	14

**OR**

**Q. 2: (B).** A sample of 5 items was taken from the output of a factory. The length and weight of 5 items are given below:

Length (Inches)	5	6	7	9	12
Weight (Ounces)	13	15	18	19	20

State which of the two characteristics is more variable. Use statistical tools to check the variability and Comment on the result.

**Q. 3: (A).** A Business owner wants to know the extent of relationship between the overhead expenses and cost of production, the data collected in (Thousand's Rs) of two variables are as under: As a consultant interpret the result and give suggestions two the owner.

Overhead Exp (000 Rs)	80	90	100	110	120	130	140	150	160
Cost of Production (000 Rs)	15	15	16	19	17	18	16	18	19

**OR**

**Q. 3: (B).** The following tabled data shows the arithmetic mean and Standard deviation of the advertising expenditure and sales of the company for the year 2001-2002

Statistical Measures	Advertising Expenditure (Rs Lakhs)	Sales (Rs Lakhs)
Arithmetic Mean	20	100
Standard Deviation	3	12

The correlation co-efficient between the two variables = 0.8

- (1) Fit the two Regression equations
- (2) For the above data compare the variability and comment on consistency of the data.
- (3) What would be the expected sales of the company if the company is expected to spend Rs 32 lakhs on advertising.

**Q. 4: (A).** A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. Find the Probability that the number of the drawn ball is a multiple of

- (1) 4 or 9
- (2) 5 or 6

**OR**

**Q. 4: (B).** Discuss at length the concept of population, sampling and types of sampling techniques in reference to research and business. your answer must be supported with simulated practical problem.

**SECTION - C**

Read the case and answer the questions

**7×02 = 14 Marks**

**Q. 5:** Case Study: A fertilizer company is interested to make future decision making about increasing the plant capacity for which company hired a consultant to forecasting the future trends based on certain data available with the company. The company produced the following data to the consultant. Figures of production (in thousand tonnes). Presently the company is working on its 100% capacity.

Year	1997	1998	1999	2000	2001	2002	2003
Production	70	75	90	98	84	91	99

**Question:**

**Q 5(A):** Fit a straight-line trend to the data using method of least square and further, estimate the production value trends for the year **2005 and 2007**

**Q 5(B):** Discuss and suggest the company in details regarding the opportunities available to increase the plant capacity on the basis of the future trends. Further do you think regression model can also be used to establish the results more accurately.

**Mapping of Questions with Course Learning Outcome**

Question Number	COs	Marks Allocated
Q. 1:	CO1	5 marks
Q. 2:	CO2	7 marks
Q. 3:	CO3	7 marks
Q. 4:	CO4	7 marks
Q. 5:	CO3, CO4	14 marks