MBHC-1.4

Sl. No.

I Semester M.B.A. Degree Examination, May/June - 2026

MANAGEMENT

Statistics and Optimization Techniques

(CBCS Scheme)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

All Sections are Compulsory.

SECTION - A

Answer any Five questions. Each question carries 5 marks. (5×5=25)

1. What are the different sources of data collection? Give examples.

2. Distinguish between correlation and regression.

3. Explain the concept of probability with an example from business situations.

4. Distinguish between various time estimates in PERT.

5. Find standard deviation and variance for the following data.

Marks	10	20	30	40	50
Frequency	5	10	15	10	5

6. Calculate Karl Pearson's correlation coefficient from the following data :

Marks	10	20	30	40	50
Frequency	12	25	33	37	48

7. Discuss the assumptions of game theory.

SECTION - B

Answer any Four questions. Each question carries 10 marks. (4×10=40)

8. Discuss the applications of statistics in business research.

9. Define decision making. Explain decision making under various circumstances

10. Calculate the median and mode, quartile deviation for the following data:

Class Interval:	0-10	10-20	20-30	30-40	40-50	50-60
Frequency:	5	7	15	12	8	5

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11. A die is thrown twice. Find the probability of getting

a) a total of 7,

b) at least one six

c) an even number on both throws.

12. The marks obtained by 10 students in two subjects are given below. Compute the regression equation of Y on X and estimate Y when X = 35.

X:	25	28	35	32	31	36	29	38	34	32
Y:	43	46	49	41	36	32	31	30	33	29

13. A Company has constructed the following payoff matrix. Apply the maximin and minimax criteria and find the best strategy.

Strategies	**State A**	**State B**	**State C**
S1	20	40	30
S2	10	30	20
S3	15	25	35

SECTION - C

14. Case (Compulsory). **(1×15=15)**

A Project has the following activities with their time estimates (in weeks) :

Activity:	A	B	C	D	E	F
Optimistic:	2	3	4	2	3	4
Most Likely:	4	5	6	3	5	6
Pessimistic:	6	7	8	4	7	8
Precedence:	-	A	A	B,C	C,D	E

i) Construct the PERT network.

ii) Calculate the expected time and variance for each activity

iii) Determine the critical path and expected project duration.
