Course Code: 23MB1C04

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)

I – MBA I - Semester Supplementary Examinations (BR23), February - 2026

QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS BRANCH: MBA

Time: 3 hours | Max. Marks: 70

PART - A Answer ONE Question from each UNIT (5 x 12 = 60 Marks)
All Questions Carry Equal Marks
PART - B Compulsory (1 x 10 = 10 Marks)

PART -A

UNIT-I

		Marks	CO	BL
1.a)	If $A = \begin{pmatrix} 1 & -2 & 1 \\ 0 & 1 & -1 \\ 3 & -1 & 1 \end{pmatrix}$ then find $3A^2 - A - 3I$, Where I is unit matrix of order 3.	9M	CO1	L3
b)	If $A = \begin{pmatrix} -1 & 2 & 3 \\ 2 & 5 & 6 \\ 3 & x & 7 \end{pmatrix}$ is symmetric matrix, then find x.	3M	CO1	L3

OR

2.a)	A question paper has two parts, part A and part B, each containing 10 questions. If the student has to choose 8 from part A and 5 from part B them in how many ways can choose the questions.	8M	CO1	L2
b)	Solve $5x^2 + 11x + 6 = 0$	4M	CO1	L3

UNIT-II

		Marks	CO	BL
3.a)	Calculate the median of the following data	8M	CO2	L3

Marks	10-25	25-40	40-55	55-70	70-85	85-100
Frequency	6	20	44	26	3	1

b)	Explain Linear Regression.	4M	CO2	L2

OR

4.a)	The following table shows the marks obtained by 100 candidates in an examination. Calculate the standard deviation	9M	CO2	L3

Marks obtained	1-10	10-20	20-30	30-40	40-50	50-60
Frequency	3	16	26	31	16	8

b)	The weights of 8 boys in kilograms: 45, 39, 53, 45, 43, 48, 50, 45. Find the mean weight for the given set of data.	3M	CO2	L3

UNIT-III

		Marks	CO	BL
5.	A glass factory specializing in crystal is developing a substantial backlog and the firm's management considering three courses of action: (A) arrange for sub – contracting, (B) arrange for over time (C) construct new facilities. The correct choice depends largely upon future demand which may be low, medium and high. By consensus management ranks the respective probabilities are 0.10, 0.50 and 0.40. A cost analysis reveals the effect upon the profits that is shown in the table below:	12M	CO3	L3

Profit (Rs.'000) if demand is	Course of action		
	A (Sub contracting)	B (Overtime)	C (Construct Facilities)
Low (p = 0.10)	10	-20	-150
Medium (p=0.5)	50	60	20
High (p=0.4)	50	100	200

Show this decision situation is in the form of a decision tree and indicates the most preferred decision and corresponding expected value.

OR

6.a)	What is decision theory? Write the steps of decision making?	6M	CO3	L1
b)	Explain the decision making under uncertainty with illustrations?	6M	CO3	L2

UNIT-IV

		Marks	**CO**	**BL**
7.a)	Explain the following terms: i) Purposive Sampling ii) Random Sampling iii) Point Estimation iv) Interval Estimation v) Two tailed test vi) Critical Region	12M	CO4	L2

OR

8.a)	Explain the types of errors in sampling.	6M	CO4	L2
b)	Explain the procedure generally followed in testing of hypothesis.	6M	CO5	L2

UNIT-V

		Marks	**CO**	**BL**
9.	Samples of students were drawn from two universities and from their wights in kilograms, mean and standard deviation are calculated and shown below. Make a large sample test. To test the significant difference between the means.	12M	CO5	L4

	Mean	S.D	Size of the sample
University A	55	10	400
University B	57	15	100

OR

10.a)	For a chi-squared distribution, find i) $\chi^2_{0.025}$ when $\nu = 15$ ii) $\chi^2_{0.01}$ when $\nu = 7$	6M	CO6	L3
b)	Explain Analysis of variance with suitable example.	6M	CO6	L2

PART – B

CASE STUDY

		Marks	**CO**	**BL**
11	Three sample, each of size five were drawn from three uncorrelated normal population with equal variances. Test the hypothesis that the population means are equal at 5% level.	10M	CO6	L4

Sample-1	10	12	9	16	13
Sample-2	9	7	12	11	11
Sample-3	14	11	15	14	16

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