Roll No.				

Total No. of Pages: 03

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M.Com. (Sem.-1)

## QUANTITATIVE TECHNIQUES

Subject Code: MCOP-103-18

M.Code: 79081

Date of Examination: 20-06-2025

Time: 3 Hrs.

Max. Marks: 60

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## INSTRUCTIONS TO CANDIDATES:

- SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.
- SECTION-B consists of FOUR Subsections: Units-I, II, III & IV. Each Subsection
  contains TWO questions each carrying EIGHT marks each and student has to
  attempt any ONE question from each Subsection.
- SECTION-C is COMPULSORY and consists of ONE Case Study carrying TWELVE marks.

### **SECTION - A**

### Explain briefly :

- a) Statistics in singular and plural sense.
- b) Properties of Correlation and Regression Coefficient.
- c) Dependent and independent events.
- d) Games of pure and mixed strategies.
- e) Hungarian assignment method.
- f) Unbalanced Assignment Problem.
- g) Critical Path Method.
- h) Probability density functions of Binomial and Poisson distributions.



#### UNIT - I

- What do you mean by Skewness and Kurtosis? Write all the measures of Skewness and Kurtosis with help of suitable examples.
- The value of median and mode of 230 workers is given to be 33.5 and 34 respectively, find the missing frequencies:

Wages (Rs).	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Number of workers	4	16	-	-	-	6	4

### UNIT - II

- 4. List down the difference between Correlation and Regression Analysis.
- Given the following data on sales and purchase :

Sales	91	97	108	121	67	124	51	73	111	57
Purchase	71	75	69	97	70	91	39	61	80	42

Obtain the regression equations Y on X, X on Y, Coefficient of Correlation and Estimate Y when X is 88 and X when Y is 56,

## UNIT - III

- 6. A manufacturer of cotter pins knows that 5 percent of his product is defective. If he sells cotter pins in boxes of 100, and guarantees that no more than 4 pins will be defective, what is the approximate probability that a box will fail to meet the guaranteed quality? (e<sup>-5</sup> = 0.0067).
- Apply rule of Dominance and solve the game for optimal strategy based on probability concept;

	B1	B2	B3	
A1	9	8	-7	
A2	3	-6	4	
A3	6	7	7	

UNIT - IV

8. Solve the following Assignment Problem of Maximum Demand:

	Districts						
. 4		A	В	C	D	E	
	P	32	38	40	28	40	
Salesman	Q	40	24	28	21	36	
Salesman	R	41	27	33	30	37	
	S	22	38	41	36	36	
	T	29	33	40	35	39	

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Draw the network diagram and determine the various floats for the following projects:

			-	D	17	E
Activity	A	В	C	D	E	1
			Α	В	A	C, D
Predecessor	-	-	71	-	6	3
Duration .	4	9	2	5	0	- 3

# SECTION - C

# Case study

Construct the following schedule of activities and related information for the :

Activity	Months	Variances	Expected Cost(Rs.0,000's)
	A	1	5
1-2	4	1	3
2-3	2	1	1
3-6	3	1	4
2-4	6	2	9
1-5	2	1	2
	5	1	. 12
5-6	3	5	20
4-6	9	3	7
5-7	7	8	14
7-8	10	16	14
6-8	1	1	4

You should assume that the cost and time required for one activity are not dependent upon the cost and time of any other activity and variations are expected to follow a normal distribution. You are required to calculate:

- a) The critical path
- b) Expected cost of construction of the plant
- c) Expected time required to build the plant
- d) The standard deviation of the expected time.

NOTE: Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

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