R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT (An Autonomous College U/s UGC Act 1956)

MBA SEMESTER - II, SEMESTER END EXAMINATION – SUMMER 2025

Subject Code: 1MB1201 Subject Name: QUANTITATIVE METHODS Time: 09:00 AM to 12:00 PM

Instructions

- 1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
- 2. Write answers of Section A and Section B in separate answer books.
- 3. Attempt all questions from both Section A and Section B.
- 4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
- 5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
- 6. BL Bloom's Taxonomy Levels (R-Remember, U-Understanding, A Application, N Analyze, E Evaluate, C -Create), CO Course Outcomes.

SECTION A

			Marks	BL	CU
Q.1	Multiple-Choice Questions		[05]		
	(a) Quantitative methods deal primarily with	ith:	1	U	1
	(i) Emotions	(ii) Verbal reasoning			
	(iii) Non-measurable data	(iv) Numerical and measurable data			
	(b) Which of these is a primary tool for da	ta collection?	1	R	1
	(i) Questionnaire	(ii) Calculator			
	(iii) Slide rule	(iv) Alarm Clock			
	(c) The most important step before analysi	is is:	1	U	1
	(i) Guessing the result	(ii) Collecting relevant data			
	(iii) Ignoring outliers	(iv) Making charts first			
	(d) The transportation problem involves:		1	R	2
	(i) Factories and offices	(ii) Sources and destinations			
	(iii) Warehouses and banks	(iv) Suppliers and employees			

Date: 02-06-2025

Dutc. 02-00-2025

Total Marks: 70

	(e) The primary goal of queuing theory is to:							1	U	2			
	(i) Maximize queue length (ii) Reduce service rate												
	(iii) Optimize waiting time and (iv) Eliminate queues completely service efficiency												
Q.2	2.2 Attempt Any Two						[10]					
	(a) Discuss the scope of quantitative methods in business decision-making. How do they contribute to effective managerial strategies?								5	Ŭ	l	1	
	(b) Differ exam	rentiate bet ples of eac	ween o h type	qual and	itative expla	e and qu iin their	antitativ relevan	ve data. Ice in bu	Provide at least faisiness research.	ive 5	А		1
	(c) Write	two exam	ples of	qua	alitativ	ve data a	and two	exampl	es of quantitative	5	А		1
Q.3	Attempt Any Two							[10)]				
	(a) What	is meant b	y waiti	ing	line in	ı queuin	g theory	y? Give	one example from	n 5	U	J	2
	daily (b) Solve	life. following	problem using least call cell method,						5	A	L	2	
				D1	D2	2 D3	D4	Su	ıpply				
		S1		19	30	50	10	7					
		S2		70	30	40	60	9					
		S3		40	8	70	20	18					
		Demai	nd	5	8	7	14						
	(c) Solve following problem using North-west corner cell.								5	N	I	2	
	Ī		D) 1	D2	D3	D4	D5	Supply				
		01	5		1	8	7	5	15				
		02	3		9	6	7	8	25				
		03	4		2	7	6	5	42				
		04	7		11	10	4	9	35				
		Demand	30		20	15	10	20	Total: 95				
Q.4	Attempt	Any Two								[10)]		
	(a) What is a questionnaire? How is it used for collecting data?							5	N	I	1		
	(b) Discuss the importance of quantitative method in logistics and supply chain management							ain 5	A	L	1		
	(c) What with e	is transpor example.	tation	prol	blem?	Define	the type	es of tra	nsportation proble	em 5	Ŭ	l	2

SECTION B

		Marks	BL	CO
Q.5	Multiple-Choice Questions	[05]		
	 (a) In time series analysis, the component that shows a regular upward downward movement over a long period is called: (i) Seasonal (ii) Trend 	or 1	R	3
	(iii) Cyclical (iv) Irregular			
	(b) In a linear programming problem, the function to be optimized is k as:	nown 1	R	4
	(i) Constraint (ii) Objective Function			
	(iii) Feasible Solution (iv) Variable Function			
	(c) Which of the following methods gives more weight to recent obser	vations? 1	U	3
	(i) Simple Moving Average (ii) Weighted Moving Avera	ge		
	(iii) Exponential Smoothing (iv) Linear Regression			
	(d) In linear regression forecasting, what does the slope coefficient rep	present? 1	U	4
	(i) Error term (ii) Rate of change of the dep variable	pendent		
	(iii) Time trend (iv) Seasonality factor			
	(e) The Simplex method is used for solving:	1	U	5
	 (i) Linear programming problems graphically (ii) Linear programming pro algebraically (iii) Non-linear optimization problems (iv) Differential equations 	blems		
Q.6	Attempt Any Two	[10]		
	(a) Define time series analysis and explain its main components.	5	R	3
	(b) Describe the steps involved in solving a linear programming proble the graphical method.	em using 5	U	5
	(c) A company recorded sales for the last 4 months as 100, 120, 130, a units. Calculate the 3-month moving average forecast for the 5th m	and 140 5 oonth.	Α	3
Q.7	Attempt Any Two	[10]		
	(a) Differentiate between simple moving averages and exponential sm techniques. Provide suitable examples.	oothing 5	U	3
	(b) Evaluate the appropriateness of using linear regression in situations there is strong seasonality in the data.	s where 5	Ε	3

(c) Explain the importance of constraints in linear programming.	5	U	4
Attempt Any Two	[10]		
(a) Analyze the advantages and disadvantages of using moving averages versus exponential smoothing in forecasting.	5	Ν	3
(b) Analyze the applicability of linear programming in transportation and warehouse optimization.	5	Ν	5
(c) How is linear regression used for demand forecasting? Describe the steps involved.	5	U	3
	 Attempt Any Two (a) Analyze the advantages and disadvantages of using moving averages versus exponential smoothing in forecasting. (b) Analyze the applicability of linear programming in transportation and warehouse optimization. (c) How is linear regression used for demand forecasting? Describe the steps involved. 	Attempt Any Two[10](a) Analyze the advantages and disadvantages of using moving averages versus exponential smoothing in forecasting.5(b) Analyze the applicability of linear programming in transportation and warehouse optimization.5(c) How is linear regression used for demand forecasting? Describe the steps involved.5	Attempt Any Two[10](a) Analyze the advantages and disadvantages of using moving averages versus5Nexponential smoothing in forecasting.5N(b) Analyze the applicability of linear programming in transportation and warehouse optimization.5N(c) How is linear regression used for demand forecasting? Describe the steps5Uinvolved.51
