Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MAM - SEMESTER–I • EXAMINATION – WINTER 2015

Subject Code: 4110503 **Date: 16/12/2015**

Subject Name: Business Mathematics

Time:10.30 AM TO 01.30 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the concept of Simple Interest and Compounding Interest.	**07**
	(b)	Mr. AB has invested Rs 10,00,000 in Urban Bank at compounding interest rate of 10% for a period of five years. Calculate the amount of interest for Mr. AB.	**07**
Q.2	**(a)**	Distinguish between Trade Discount and Cash Discount.	**07**
	(b)	A book was sold for Rs 27.50 with a profit of 10%. If it were sold for Rs 25.75 then what would have been the percentage of profit or loss?	**07**
		OR	
	(b)	A grocer purchased 80 kg of sugar at Rs 13.50 per kg and mixed it with 120 kg sugar at Rs 16 per kg. At what rate should he sell the mixture to gain 16%?	**07**
Q.3	**(a)**	Find value of following matrix: $\begin{bmatrix} 2 & 3 & -2 \\ 1 & 2 & 3 \\ -2 & 1 & -3 \end{bmatrix}$	**07**
	(b)	If A = $\begin{bmatrix} 1 & 0 & 4 \\ 3 & 2 & 1 \\ 5 & 4 & 0 \end{bmatrix}$ and B = $\begin{bmatrix} 3 & 1 & 2 \\ 7 & 0 & 5 \\ 2 & 5 & 1 \end{bmatrix}$ then find value of 3A+B.	**07**
		OR	
Q.3	**(a)**	Define following terms with example: 1. Matrices 2. Diagonal Matrix 3. Scalar Matrix 4. Identity Matrix 5. Orthogonal Matrix 6. Transpose Matrix 7. Square Matrix	**14**
Q.4	**(a)**	Discuss various types of Functions.	**07**
	(b)	Prove that $\lim_{x \to 2} \left[\frac{1}{x-2} - \frac{1}{x^2-3x+2} \right] = 1$	**07**
		OR	
Q.4	**(a)**	Find value of $\lim_{x \to 3} \left[\frac{x^2+2x-15}{x^2-9} \right]$	**07**
	(b)	Find value of $\lim_{x \to 0} \left[\frac{4^x-2^x}{x} \right]$	**07**
Q.5	**(a)**	Find value of $\frac{12}{9} = \frac{4}{x+5}$	**07**
	(b)	Find the value of $\frac{12}{x-2} = \frac{32}{x+8}$	**07**
		OR	
Q.5	**(a)**	Define what is Ratio? Also discuss its types.	**07**
	(b)	Give difference between Ratio, Proportion and Percentage with example.	**07**

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