

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MAM - SEMESTER-I • EXAMINATION – SUMMER • 2015**

**Subject Code: 4110503**

**Date: 04-06-2015**

**Subject Name: Business Mathematics**

**Time: 02:30 pm - 05:30 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)** In a bag of blue and yellow candies, the ratio of blue candies to yellow candies is 3:5. If the bag contains 60 yellow candies, how many blue candies are there? **07**

**Q:1 (b)** Explain the concept of Ratio, Proportion and Percentage by giving examples. **07**

**Q:2 (a)** Stores will often sell items for a discounted sales price. The store will discount an item by a percent of the original price. For example, an item that originally cost Rs.20 may be discounted by 25%. Calculate the discount. **07**

**Q:2 (b)** Distinguish between Trade discount and Cash discount by giving examples. **07**

**OR**

**Q:2 (b)** Distinguish between Commission and Brokerage. **07**

**Q:3 (a)** If  $A = \begin{bmatrix} 5 & 6 \\ 4 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 3 \\ 4 & 9 \end{bmatrix}$ , find  $A+B$  and  $A-B$  **07**

**Q:3 (b)** Solve the following system of equation by matrix method **07**

$$2x + 3y + 4z = 8$$

$$3x + y - z = -2$$

$$4x - y - 5z = -9$$

**OR**

**Q:3 (a)**  $\begin{bmatrix} 1 & 2 & 4 \\ 0 & 5 & 6 \\ 2 & 7 & 9 \end{bmatrix}$ ,  $B = \begin{bmatrix} 3 & 5 & 6 \\ 5 & 0 & 9 \\ 4 & 2 & 0 \end{bmatrix}$ , and  $C = \begin{bmatrix} 2 & 6 & 5 \\ 3 & 4 & 7 \\ 8 & 0 & 1 \end{bmatrix}$  **07**

Find the matrix  $3A - B + 2C$ .

**Q:3 (b)** If  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  **07**  
Find  $A^{-1}$

**Q:4 (a)** The market supply function of a commodity is  $q = 80 + 4p$  where  $q$  denotes the quantity supplied and  $p$  denotes the market price. The unit production cost is Rs. 1.50. Total profit of Rs. 240 is desirable. What is the price that the farmer has to receive so that he can realize this profit? Use your knowledge of function to solve this sum. **07**

- Q:4 (b)** CavinKare produces three products namely chik shampoo, nyle shampoo and Fair ever cream. They have conducted survey of their own employees. In a survey of 940 factory workers of CavinKare Ltd., 680 use chik shampoo, 380 use chik shampoo and Fair ever cream, 120 workers use chik shampoo and nyle shampoo but not fairever cream, 620 use fairever cream and 70 use all the three products of the company and 250 use nyle shampoo and 110 use nyle shampoo and fairever cream. Find **07**

1. % workers use Chik shampoo alone?
2. % workers use Nyle shampoo alone?

**OR**

- Q:4 (a)** Write a detailed note on Types of functions. **07**

- Q:4 (b)** Distinguish between Rational and Irrational function. **07**

- Q:5 (a)** Distinguish between Simple and Compound interest. Explain the concept by giving numerical example. **07**

- Q:5 (b)** Explain the concept of EMI.

**OR**

- Q:5 (a)** A Radio manufacturing company produces three models of radios, say X Y and Z. There is an export order of 5,000 for model X 7,500 for model Y, and 1500 for model z. The material and labour (in appropriate units needed to produce each model is given by the following table **14**

	Material	Labour
Model X	15	10
Model Y	16	12
Model Z	20	15

Use matrix multiplication to compute the total amount of material and labour needed to fill the entire order.

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