

(4) Seat No.: \_\_\_\_\_

No. of Printed Pages: 02

## SARDAR PATEL UNIVERSITY

## BBA (ISM) EXAMINATION

## SEMESTER - I (NC)

Saturday, 18<sup>th</sup> March 2017

## UM01CBBS07: BUSINESS MATHEMATICS

Time: - 2.00 p.m. to 4.00 p.m.

Total Marks: - 60

## Q.1

- (a) Solve:  $|x - 4| = 0.1$  04
- (b) If  $U = \{x: 1 \leq x \leq 10, x \in N\}$ ,  $A = \{1, 2, 7, 4, 5\}$ ,  $B = \{2, 3, 9, 6, 7, 8\}$  and  $C = \{3, 4, 5, 6\}$ , then find  $A \cup B$ ,  $B \cap C$ ,  $B - C$ ,  $A \Delta C$  and  $A'$ . 05
- (c) If  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11\}$ ,  $A = \{1, 2, 5, 6, 9\}$  and  $B = \{2, 4, 6, 8\}$  then Verify: (1)  $(A \cup B)' = A' \cap B'$  (2)  $(A \cap B)' = A' \cup B'$  06

## Q.1

OR

- (a) Define the terms with example: (1) Union of two sets (2) Intersection of two sets 04
- (b) Express the following inequalities in a Modulus form:  $-4 < x < 3$  05
- (c) Express (1) 0.023023023 and (2) 2.020202.... into quotient form. 06

## Q.2

- (a) If  $A = \begin{bmatrix} -4 & 2 \\ -5 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} 4 & -3 \\ 3 & -1 \end{bmatrix}$ , then verify that  $(A + B)^T = A^T + B^T$ . 04
- (b) If  $A = \begin{bmatrix} 4 & -1 \\ -1 & 3 \\ 2 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} -2 & 5 \\ 3 & -1 \\ 5 & 2 \end{bmatrix}$  and  $C = \begin{bmatrix} 2 & 4 \\ -1 & -5 \\ 3 & -2 \end{bmatrix}$ ,  
Then find 1.  $A - C$  2.  $A + B + C$  3.  $3A - 2B + C$  05
- (c) Solve the equations by Inverse of matrix:  $3x - 2y + z = 2$   
 $x + 3y - 2z = 2$   
 $2x - y + z = 2$  06

OR

## Q.2

- (a) Define the terms with example: (1) Zero Matrix (2) Transpose Matrix 04
- (b) Solve the following equations by Cramer's Rule:  $2x + y = 4$ ,  $5x + 3y = 9$  05
- (c) If  $A = \begin{bmatrix} 1 & 1 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 1 & 2 \\ 2 & 4 & 1 \\ 1 & 2 & 2 \end{bmatrix}$ , then find  $AB$  and  $BA$ . 06
- Also check whether  $AB = BA$  or not.

## Q.3

- (a) Check whether or not the points  $(1, -3)$ ,  $(-6, 6)$  and  $(8, 0)$  are collinear. 04
- (b) Find the area of triangle having the vertices:  $A(-3, 2)$ ,  $B(1, -2)$ ,  $C(5, 6)$ . 05
- (c) Find the equation of a line passing through the point  $(-2, 7)$  and making equal intercepts on the co-ordinate axes. 06

(1)

(P.T.O.)

OR

Q.3

- (a) Find  $x$  if  $d\{(x, -4), (-8, 2)\} = 10$ . 04
- (b) Find what values of  $k$ , the lines  $3x - (3k + 2)y + 2 = 0$  and  $2x - (k - 3)y - 1 = 0$  are 05
1. Parallel?
  2. Perpendicular?
- (c) Show that the equation of a line having slope  $m$  and passing through  $A(x_1, y_1)$  is 06
- $$y - y_1 = m(x - x_1).$$

Q.4

- (a) Evaluate following: 12
1.  $\lim_{x \rightarrow 2} \frac{\sqrt{x+7}-3}{x-2}$
  2.  $\lim_{x \rightarrow 3} \frac{x^2-9}{x-3}$
  3.  $\lim_{n \rightarrow \infty} (\sqrt{n^2 + n + 1} - \sqrt{n^2 + 1})$
- (b) Write working rules for Limit. 03

OR

Q.4

- (a) Evaluate following: 15
1.  $\lim_{x \rightarrow 1} \frac{x^3 - 2x^2 + 2x - 1}{x - 1}$
  2.  $\lim_{n \rightarrow \infty} (1 + \frac{3}{n})^n$
  3.  $\lim_{x \rightarrow 0} \frac{5^x - 3^x}{x}$

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