SARDAR PATEL UNIVERSITY
B.B.A. (ISM) EXAMINATION
SEMESTER – I (NC) 2010 BATCH
Tuesday, 20th November 2018
10.00 a.m. to 12.00 p.m.
UM01EBBS01: BUSINESS MATHEMATICS - I

Total Marks: - 60

Q.1

(a) Define following terms with example: 08
  (1) Union of two sets
  (2) Singleton set
  (3) Subset
  (4) Compliment of a set

(b) If $U = \{1,2,3,4,5,6,7,8\}, A = \{1,2,4,5\}$, $B = \{3,4,5,7\}$ and $C = \{2,3,4,6\}$ then verify 07
  following:
  (a) $(A \cup B)' = A' \cap B'$
  (b) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
  (c) Also find $(C')'$.

Q.1   **OR**

(a) If $A = \{5, 6, 7\}$, $B = \{7, 5\}$ and $C = \{5, 9\}$, then verify the following results: 08
  (i) $A \times (B \cup C) = (A \times B) \cup (A \times C)$
  (ii) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

(b) (1) Express the following inequalities in a Modulus form: $3 < x < 5$ 07

  (2) Express $0.7777\ldots$ into quotient form.

Q.2

(a) If $A = \begin{bmatrix} 1 & 0 & 4 \\ 2 & 3 & 2 \\ 0 & 3 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 1 & 3 \\ 2 & 0 & 5 \\ -1 & 4 & 2 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 1 & 3 \\ 3 & 1 & 2 \\ 2 & 1 & 2 \end{bmatrix}$ then find 08

  (a) $A + B$ (b) $3A - 2B$ (c) $A + B + 2C$

(b) Solve the following equations by Inverse of matrix: $2x + y = 4$, $5x + 3y = 9$ 07

OR

Q.2

(a) Define the terms with example: **(1)** Null matrix 08
                                        (2) Column Matrix
                                        (3) Transpose Matrix
                                        (4) Diagonal matrix

(b) Solve the equations by Cramer's Rule: $6x + y = 2$, $2x + 3y = 2$ 07

(1)

(P.T.O)

Q.3

(a) 1. Find the equation of a line having slope 4 and passing through the point (3,2).   08

2. Find the equation of a line whose slope is 7 and which passes through the intersection of the lines $x - 4y + 8 = 0$ and $x + y - 5 = 0$.

(b) Obtain the equation of a line having X − intercept a and Y- intercept b.   07

OR

Q.3

(a) 1. Show that the points $(-2,3)$, $(5,8)$ and $(-9,-2)$ are collinear.   08

2. Find a, if the distance between $(a, -2)$ and $(-4, 1)$ is 5.

(b) Show that the equation of the line passing through (x_1, y_1) with slope m is   07
$$y - y_1 = m(x - x_1).$$

Q.4

(a) Evaluate following: 10

1. $\lim\limits_{x \to 1} \dfrac{\sqrt{x+4} - \sqrt{5}}{x-1}$

2. $\lim\limits_{x \to 1} \dfrac{x^3 - 2x^2 + 2x - 1}{x - 1}$

(b) Write working rules for Limit.   05

OR

Q.4 Evaluate following: 15

1. $\lim\limits_{x \to \infty} \left(1 + \dfrac{4}{n}\right)^n$

2. $\lim\limits_{x \to 2} \dfrac{x^3 - 8}{x^2 - 4}$

3. $\lim\limits_{x \to -2} \dfrac{x^2 + 5x + 9}{x - 2}$

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