[12 C A-5] Seat No.: _____

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# SARDAR PATEL UNIVERSITY

**NOVEMBER - DECEMBER : 2016 EXAMINATION, BBA (General) SEMESTER : I**

**WEDNESDAY, 23/11/2016**

**MORNIING SESSON TIME : 10.00 TO 12.00**

**SUBJECT CODE : UM01CBBA07**

**BUSINESS MATHEMATICS - I**

**TOTAL MARKS : 60**

Q-1 (A) Define the terms : [05]

(1) Difference of two sets (2) Subset (3) Empty set

(4) Intersection and Union of two sets

Q-1 (B) Express : [06]

(1) $|x - 3| < 4$ in the form of an interval

(2) $-3<x<7$ in a modulas form.

Q-1 (C) If A = {-3, -2, 2, 0}, B = {3, 2, -2,0} then find [04]

(1) AUB (2) $A \cap B$ (3)A-B (4) B-A

OR

Q-1 (A) State and prove De'Morgan laws by venn diagram. [05]

Q-1 (B) If A={1,3}, B={5,6}, C={6,9} then prove that [06]

(1) $AX(B \cap C) = (AXB) \cap (AXC)$

(2) $AX(BUC) = (AXB) \cup (AXC)$

Q-1 (C) Express 0.0272727... into a quotient form. [04]

Q-2 (A) Solve the following equations using Cramer's rule. [05]

$2(x-1) + 3(y+1) = 15$

$2(y+3) - 2(x-2) = 6$

Q-2 (B) Solve the following system of equations using matrix method. [06]

$3x - 2y + z = 2$

$x + 3y - 2z = 2$

$2x - y + z = 2$

Q-2 (C) Define the terms with example [04]

(1) Transpose of a matrix (2) Identity matrix

OR

Q-2 (A) If $A = \begin{bmatrix} 3 & 4 \\ 5 & 2 \end{bmatrix}$ then find $A^2 - 5A\ 14I$ [05]

Q-2 (B) If $A = \begin{bmatrix} 3 & 5 \\ 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 5 \\ 3 & 4 \end{bmatrix}$ then check [06]

(1) $(A+B)^T = A^T+B^T$ (2) $(AB)^T = B^TA^T$

Q-2 (C) Write the rules of determinant. [04]

Q-3 (A) Find the equation of a line passing through the point $(x_1, y_1)$ and having slope m. [05]

Q-3 (B) Find the area of a triangle with vertices A(1,1) B(2,3) and C(-2,2). [05]

Q-3 (C) Find x if $d\{(x,-4), (-8,2)\} = 10$. [05]

OR

Q-3 (A) Find the equation of a line passing through the point $A(x_1, y_1)$ and $B(x_2, y_2)$. [05]

Q-3 (B) Find the equation of a line passing through the point (-2,5) and making equal intercepts on the co-ordinance axes. [05]

Q-3 (C) Find the equation of a line passing through the intersection of x-y+2=0 and 2x+3y-6=0 and parallel to x-2y+5=0. [05]

Q-4 (A) Evaluate the following : [12]

(1) $\lim_{x \to 2} \frac{x^2-4}{x^3-8}$

(2) $\lim_{x \to 0} \frac{13^x-7^x}{3x}$

(3) $\lim_{x \to a} \frac{x^{16}-a^{16}}{x^8-a^8}$

Q-4 (B) Write the rules for limit. [03]

OR

Q-4 (A) Evaluate the following :

(1) $\lim_{x \to 3} \frac{\sqrt{x+5}-2\sqrt{2}}{\sqrt{x-1}-\sqrt{2}}$ [05]

(2) $\lim_{n \to \infty} 4\left[\frac{1^3+2^3+---+n^3}{n^4}\right]$ [05]

Q-4 (B) If $f(x)=x^2$ then evaluate $\lim_{x \to 0} \frac{f(x+2)-f(x-2)}{x}$ [05]

*All the Best*