SARDAR PATEL UNIVERSITY
OCTOBER - NOVEMBER : 2018 EXAMINATION, BBA (General) (2011) SEMESTER : I (NC)
MONDAY, 29/10/2018
EVENING SESSON TIME : 2.00 TO 4.00 pm
SUBJECT CODE : UM01CBBA07
BUSINESS MATHEMATICS - I

TOTAL MARKS : 60

Q-1 (A) If A = {5, 6, 7}, B = {7, 8} and C = { 5, 8} then verify the following results.   [06]
      (1) A X (B – C) = (A X B) – (A X C)
      (2) A X (B Δ C = (A X B) Δ (A X C)

Q-1 (B) Express – 1<x<7 in a modulas from.   [04]

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

<p align="center">OR</p>

Q-1 (A) Express   [06]
      (1) 0.0272727.... into a quotient from
      (2) $|x+5| < 1$ in the interval form

Q-1 (B) Define the terms :   [04]
      (1) Subset (2) Null Set (3) Union and Intersection of two sets

Q-1 (C) If A={1, 2, 3, 4}, B={3, 4, 9, 11}, C={2, 11, 18, 22} then find   [05]
      (1) A$\cap$B (2) B$\cap$C (3) A$\cap$(B$\cap$C) (4) C$\cap$A (5) (A$\cap$B) U (B$\cap$C)

Q-2 (A) Solve the following equations using inverse of a matrix.   [06]
      3x – 2y + z = 2,
      x + 3y – 2z = 2
      2x – y + z =2

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

Q-2 (C) If $A = \begin{bmatrix} 3 & 4 \\ 5 & 2 \end{bmatrix}$ then find A² – 5A – 14I   [05]

<p align="center">OR</p>

Q-2 (A) If $A = \begin{bmatrix} 5 & 2 \\ -2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 3 \\ 2 & -1 \end{bmatrix}$ then verify $(AB)^T = B^T A^T$ and find the   [06]
      value of |A| & |B|.

Q-2 (B) Define the terms   [04]
      (1) Square matrix (2) Unit matrix (3) Diagonal matrix (4) Column matrix.

Q-2 (C) Solve the following equations by Cramer's rule.   [05]
      $\begin{vmatrix} x+2 & 3 \\ y+1 & 5 \end{vmatrix} = 8$, $\begin{vmatrix} x-1 & y-1 \\ 3 & 6 \end{vmatrix} = 4$

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

Q-3 (B) Find the equation of a line passing through the point (-1, 2), and (5, -3) also find its slope and intercepts on the axes. [05]

Q-3 (C) Find x if the distance between the points P(-3, -2) and Q(x, 1) is $3\sqrt{10}$. [05]

OR

Q-3 (A) Find the equation of a line whose X Intercept is -3 and Y intercept is -4. Also find its slope. [05]

Q-3 (B) Find the equation of a line passing through a point (4, 2) and parallel to the line 3x-2y=5. [05]

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

Q-4 (A) Evaluate :

(1) $\displaystyle\lim_{n \to \infty} \sqrt{n^2+n+1} - \sqrt{n^2+1}$ [05]

(2) $\displaystyle\lim_{x \to 0} \frac{7^x - 3^x}{x}$ [05]

Q-4 (B) Write the rules for limit. [05]

OR

Q-4 (A) Evaluate :

(1) $\displaystyle\lim_{x \to 0} \frac{2^x - 3^x}{3^x - 5^x}$ [05]

(2) $\displaystyle\lim_{x \to -1} \frac{x^{24} - 1}{x^{21} + 1}$ [05]

Q-4 (B) If f(x)=x² then evaluate $\displaystyle\lim_{x \to 0} \frac{f(x+2) - f(x-2)}{x}$ [05]

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