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[29] Seat No._____ No. of printed pages : 2

SARDAR PATEL UNIVERSITY
B.B.A. (General) (I Semester) Examination
Friday, 22nd April 2016
2.30 pm - 4.30 pm
UM01CBBA07 : BUSINESS MATHEMATICS

Total Marks: 60

Note : Figure to the right indicate full marks.

Q.1

(a) Define the terms with examples. [05]
(1) Union of two sets (2) Subset
(3) Difference of two sets (4) Null set
(5) Singleton set.

(b) Express [05]
(1) $|x+5| < 1$ in the from of an interval.
(2) 0.0272727..... into quotient form.

(c) If A = {1, 2, 5, 6, 9 }, B = {2, 4, 6, 8} and C = {2, 5, 10} then state and verify Distributive laws. [05]

OR

Q.1

(a) If A = {1,3}, B = {5,6} and C = {6,9} then verify, [05]
(1) $A\times(B\cap C)=(A\times B)\cap(A\times C)$
(2) $A\times(B\cup C)=(A\times B)\cup(A\times C)$

(b) Express, [05]
(1) -3 < x < 8 in a modules form
(2) $0\le|x+3|\le1$ into an interval form.

(c) Write De' Morgan laws and verify it for following. [05]
A = {1, 2, 4, 6, 8}, B = {2, 3, 6, 7, 9} and
U = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Q.2

(a) Solve by Cramer's rule : [05]
2x + 5y = 4, 3x – 2y = 7

(b) Solve the following system of equations using inverse of a matrix. [06]
x + y + z = 3, x + 2y + 3z = 6, 3x + y + 2z = 6.

(c) Define the terms. [04]
(1) Square matrix (2) Transpose of a matrix
(3) Indentity matrix (4) Null matrix.

OR

Q.2

(a) Solve by Cramer's rule. [05]
$\frac{7}{x}+\frac{3}{y}=-4,\quad \frac{3}{x}-\frac{4}{y}=-7$

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

(1) $(AB)^T = B^T A^T$

(2) $(A+B)^T = A^T + B^T$

(c) Write the rules of determinant. [04]

Q.3

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

(b) Check that the lines $x + y - 5 = 0$, $x + 6y = 0$ and $x - y - 7 = 0$ are concurrent or not. [05]

(c) Obtain the equation of a line passing through a point $A(x_1,y_1)$ and having slope m. [05]

OR

Q.3

(a) Find the equation of a line passing through the point (2,3) and making equal intercepts on both axes. [05]

(b) Find 'x' if $d\{(x, -4),(-8, 2)\} = 10$ [05]

(c) Find the equation of a line passing through the points (1,0) and (2, –1). Does the point (2, 2) lie on the line ? [05]

Q.4

(a) Write the rules for limit. [03]

(b) Evaluate,

(1) $\lim_{x \to 3} \frac{x^3 - 27}{x^2 - 9}$ [04]

(2) $\lim_{x \to 1}\left[\log x + \frac{1-x}{1-\sqrt{x}}\right]$ [04]

(3) $\lim_{x \to 3} \frac{\sqrt{x+2} - \sqrt{5}}{x-3}$ [04]

OR

Q.4 Evaluate,

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

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

(3) If $f(x) = x^2$ then [05]

$\lim_{x \to 0} \frac{f(x+4) - f(x-4)}{x}$

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