(133/A-30) SEAT No._____ N0. Of printed pages: 02

SARDAR PATEL UNIVERSITY
B.B.A. (ITM) (4 Years)NC EXAMINATION
SEMESTER – I
Monday, 29th October 2018
2.00 p.m. to 4.00 p.m.
UM01CBBI07: BUSINESS MATHEMATICS

Note: Figures to the right indicate marks.**Total Marks: - 60**

Q.1

(a) 08

1. Explain following terms with example:
   - **(a)** Union of two sets
   - **(b)** Subset
2. If $U = \{x: 1 \leq x \leq 9, x \in N\}, A = \{1,2,3\}, B = \{2,4,6,8\}$ and $C = \{6,7,8,9\}$, then find $A \cup B, A \cap C, B - C$ and A'.

(b) 07

1. Find power set of set $A = \{1,2,3,4\}$.
2. Express the inequality in a Modulus form: $-3 < x < 5$

OR

Q.1

(a) 08

1. If A= {1, 3, 5, 7}, B= {2, 4, 6, 8}, and C=$\{x: x \leq 10, x \in N\}$ then verify Distributive laws.
2. Solve: $|x - 3| = 7$

(b) 07

1. Draw Venn diagram: (a) $(A \cup B)'$ (b) $A \cap (B \cup C)$
2. Express 0.5555 ...in a quotient form.

Q.2

(a) 08

1. Explain following terms with example:
   - **(a)** Transpose matrix
   - **(b)** Column matrix
2. Solve the equations by Cramer's rule:

$$3x + y = 5,$$
$$x + 2y = 8.$$

(b) 07

If $= \begin{bmatrix} 3 & 1 \\ 1 & -3 \\ 4 & 1 \end{bmatrix}, B = \begin{bmatrix} 1 & -5 \\ 3 & 1 \\ 4 & 2 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 0 \\ 1 & 5 \\ 3 & -2 \end{bmatrix}$, Then find

1. $-5A$ **2.** $A + 2B$ **3.** $3B - 2C$ **4.** $A + B + C$

OR

Q.2

(a) 08

If A $= \begin{bmatrix} 3 & -1 \\ 1 & 0 \end{bmatrix}$ and B $= \begin{bmatrix} -1 & 2 \\ 3 & 6 \end{bmatrix}$, then

1. Find AB and BA.
2. Show that $(A + B)^T = A^T + B^T$.

(b) 07

Solve following equations using inverse of a matrix:

$$x + y + z = 3$$
$$2x + y + z = 4$$
$$x + 2y + 3z = 6$$

Q.3

(a) 08

1. Show that the equation of the line passing through (x_1, y_1) with slope m is $y - y_1 = m(x - x_1)$.
2. Find a, if the distance between $(a, -2)$and$(-4, 1)$ is 5.

(b) Find the equation of a line passes through the intersection of $x-y+2=0$ and $2x+3y-6=0$andit makes equal intercepts on the axes. 07

Q.3 **OR**

(a) 1. Find the value of k: 08

(a) If $3kx+4y+k=0$ passes through the point $(-1,3)$

(b) If $4x-ky-7=0$ has the slope 2.

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

(b) Find the area and perimeter of triangle having the vertices: 07
A (1, -1),B (2, 5), C (7, 2).

Q.4

(a) Write working rules for limit. 05

(b) Evaluate following:

1. $\lim_{x\to 1}\frac{\sqrt{x+2}-\sqrt{3}}{x-1}$ 10

2. $\lim_{x\to 2}\frac{x^3-8}{x^2-4}$

OR

Q.4 Evaluate following: 15

1. $\lim_{x\to 1}\frac{x^2-1}{x-1}$

2. $\lim_{x\to 3}\frac{x^2-5x+6}{x^2-9}$

3. $\lim_{x\to 2}(3x^2+4x+9)$

4. $\lim_{x\to\infty}(1+\frac{7}{n})^n$

5. $\lim_{x\to 0}\frac{3^x-5^x}{x}$

— X —

(2)