Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

COLLEGE OF AGRICULTURE

B.Sc.(Hons.) Agriculture Summer 2017 - 18 Examination

Semester: 1 **Date: 11/06/2018**
Subject Code: 20116101 **Time: 2.00 pm to 4.30 pm**
Subject Name: Elementary Mathematics **Total Marks: 60**

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A. Fill in the blanks. (Each of 1 marks) **(10)**

1. Derivative of $cosx$ is .....
2. Order of transpose of a 2×3 matrix is .....
3. If $\begin{bmatrix} -2 & 4 \\ 3 & -1 \end{bmatrix} = \begin{bmatrix} -x & z \\ 3 & y \end{bmatrix}$ then value of $x - y$ is.....
4. Derivative of $\frac{1}{x}$ is .....
5. A is a 2×3 and $A + B$ is possible then order of B is.....
6. $\lim_{x \to 1} 5x$ = ...
7. If A=$\begin{bmatrix} 6 & -3 \\ 0 & -5 \end{bmatrix}$ then A^t =.....
8. How many straight lines can pass through given point.....
9. The mid point divides the line segment in ..... : ..... ratio.
10. The circle divides the plane into .....parts.

B. Multiple choice type questions. (Each of 1 mark) **(10)**

1 If A is having dimension 5×6 and B ishaving dimension 6×1 then dimension of AB will be

a) 6×1 **c)** 5×1
b) 5×6 **d)** not defined

2 The value of $sin\ 90$ is

a) 1 **c)** $\frac{1}{2}$
b) 0 **d)** undefined

3. If the equation of circle is $(x-2)^2 + (y-2)^2 = 16$,then which point lies on the circle

a) $(2,2)$ **c)** $(2,6)$
b) $(-2,6)$ **d)** none of these

4. if A= $\begin{bmatrix} 2 & -4 \\ 3 & -8 \end{bmatrix}$,then trace of (A) will be

a) 6 **c)** -16
b) -6 **d)** 10

5. For the given matrix

$$A=\begin{bmatrix} 2 & 4 & 5 & 1 \\ 3 & 2 & 0 & 3 \\ -1 & 9 & 7 & 0 \\ -1 & -9 & 3 & 4 \end{bmatrix}$$

The elements a_{43} is.

a) -9 **c)**-1
b) 3 **d)**4

6 Which of the following point lies on the straight line $x + 2y - 9 = 0$

a)(2,5) **c)**(2,2)
b)(5,1) **d)**(5,2)

7 if $A=\begin{bmatrix}2 & 0\\ 3 & -1\end{bmatrix}$,then det of (A) will be

a) 0 **c)** -2
b) 2 **d)** -1

8 find $\frac{dx^2}{dx} =$

a) x **c)** 0
b) $2x$ **d)** not defined

9 If the equation of line is $6x + 6y - 8 = 0$ then the slope will be:

a) $-\frac{8}{6}$ **c)** 1
b) -1 **d)** $\frac{8}{6}$

10 The distance between $points\ \ A(0,0)$ and $B(0,3)$ is

a) 3 **c)**9
b) -3 **d)** -9

Q.2 Do as Directed

A. Define the following. (Any five) **(05)**

1.Matrix 2. Collinear points 3.Slope
4. Function 5.Range of a function 6. Circle 7.X-intercept

B. Answer the following. (Any five) **(05)**

1. Find the equation of the circle with centre $(3,2)$ and radius 7.
2. Estimate the value of the following limit $\lim_{x\to 2}\left(\frac{x^3}{2x+1}\right)$.
3. If $A=\begin{bmatrix}3 & 0\\ 2 & 4\end{bmatrix}$ and $B=\begin{bmatrix}0 & 2\\ 0 & 4\end{bmatrix}$ find AB.
4. Find the distance between $A(4,6)$ and $B(2,0)$.
5. If $y = xsinx$,find y'.
6. Find the equation of the line through (2, 4) with slope 2.
7. Evalate $\int 3x^5\,dx$.

Q.3 SOLVE. (Any five) **(15)**

1.If $y = logx + 2x^2$, find $\frac{dy}{dx}$.
2. Evalate $\int (cosx + 2x^2)\,dx$
3.Estimate the value of the following limit $\lim_{x\to 2}\left(\frac{x^2+x+2}{2x-4}\right)$
4.The Equation of a line is $3x + 2y + 5 = 0$ then find the slope and $x - intercept.$
5. If $A=\begin{bmatrix}3 & 2\\ 1 & 1\end{bmatrix}$ find $\text{inverse of } A^T$.
6.Find the coordinates of the point which divides the line joining the points $(2,2)$ and $(3,6)$ internally in the ratio $2:1$.

Q.4 Attempt any Three **(15)**

1.If $A=\begin{bmatrix}4 & 0\\ 8 & -4\end{bmatrix}$ then find the $determinant$ and $trace$ of A and find A^{-1}.
2.If $y = sinx + e^x + 2x^2 + logx$,then find $\frac{dy}{dx}$.
3. If $A=\begin{bmatrix}1 & 1\\ 4 & 2\end{bmatrix}$ and $B=\begin{bmatrix}1 & 0\\ 3 & 5\end{bmatrix}$ find $A - B, A + B\ and\ AB$.
4.Find the co-ordinates of the mid-point of the line segment joining the points $A(8,3) and\ B(2,5)$.