Seat No: _____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF PHARMACY

B.Pharm. Winter 2017-18 Examination

Semester: 1 **Date: 18/01/2018**
Subject Code: 08101105 **Time: 10.00 am to 1.00 pm**
Subject Name: Elementary Remedial Mathematics **Total Marks: 75**

Instructions:
1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay type Questions. (Any 2 out of 3) (10 marks each) **(20)**

1. If A = $\begin{bmatrix} -5 & 0 \\ 3 & 6 \end{bmatrix}$; B=$\begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$, then find the matrix X such that 2(X+A)+3B=0.

2. Find the equation of the circle having centre (2, 3) and passing through the point of Intersection of the lines 3x-2y-1=0 and 4x+y-27=0.

3. Solve the equation : (i) ydx + xdy =0, (ii) y" + 5y' + 6y =0

Q.2 Short Essay type Questions. (Any 7 out of 9) (5 marks each) **(35)**

1. Define one-to-one and onto function. Which of the functions, (i) $f(x) = x, (ii) f(x) = 1, f(x) = x^2$ are one-to-one and onto functions.

2. Compute $\int tanxdx$ by the method of substitution.

3. If $f(x) = \frac{3x+2}{5x-2}$, compute $f'(x)$.

4. If A=$\begin{bmatrix} 1 & -2 & 3 \\ 1 & 1 & 0 \\ 4 & 3 & 5 \end{bmatrix}$, B=$\begin{bmatrix} 2 & 1 & 1 \\ -3 & 1 & 4 \\ 0 & 2 & 3 \end{bmatrix}$ then find A^T+B^T. Also show that AB≠BA.

5. Find the equation of the line passing through the points (1, 2) and (5, 7). Find the slope of this line and the intercepts made on x and y axes.
6. Write the equation of line in slope-point form. Find the equation of the line passing through (2, 3) and having slope 5.
7. F(x)=xsinx, find F'(x), F'(0).
8. Solve the system of equations(using matrices)
   3x-5y=1
   x-4+2y=0
9. Show that (2, 4), (2, 6) , $(2+\sqrt{3}, 5)$ are the vertices of an equilateral triangle

Q.3 Answer in short. (2 marks each) **(20)**

1. If the distance between (a, 2) and (3, 4) is $2\sqrt{2}$, then find the value of 'a'.

2. Find the equation of the circle having centre $(acos\alpha, asin\alpha)$, and radius a.
3. Compute the integral, $\int_{-1}^{1}(2x+3)dx$.

4. $f(x) = 2x^2 + 5x + 3$, and $g(x) = 2x + 5$. Find $f(g(2))$.

5. Find the equation of the line inclined at 135^0 with the positive x-axis and having y-intercept 6.

6. If A = $\begin{bmatrix} 1 & -1 & 0 \\ 2 & -2 & 0 \\ 1 & 1 & 1 \end{bmatrix}$, is it possible to find A^{-1}? Why?

7. Find $\int \left(4x^3 - \frac{1}{x} + \sin x - e^x\right) dx$.

8. Give the distance formula. Find the distance between A(-3, 1) and B(3,2).

9. Show that the lines 2x+5y-6=0 and 5x-2y+1=0 are perpendicular to each other.

10. Write the normal form of the equation of the line and explain all the parameters involved.