PARUL UNIVERSITY
FACULTY OF PHARMACY
Pharm.D Examination, May – 2018

Year: 1   Date: 18/05/2018
Subject Code: 08207131   Time: 10:00 am to 01:00 pm
Subject Name: Remedial Mathematics   Total Marks: 70

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

Q.1 Answer the following. (Any 2 out of 3) (15 Mark Each)   **(30)**

1. What is the condition for multiplication of two matrices? If $A=\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ 2 & 1 \\ 1 & 2 \end{bmatrix}$

   then find AB and BA if possible. Determine whether AB=BA or not.

2. (a) Prove that A (-1, 0), B (0, 3), C (3, 2) and D (2, -1) are vertices of a square.(8 marks)

   (b) Show that the points (-1,-1), (2,3) and (8,11) are collinear.(7 marks)

3. (a)If $x = \frac{a(1+t^2)}{1-t^2}$ and $y = \frac{2bt}{1-t^2}$ then find $\frac{dy}{dx}$.(8 marks)

   (b)If $y = \log\left(\frac{1+sinx}{1-sinx}\right)$ find $\frac{dy}{dx}$.(7 marks)

Q.2 Answer the following. (Any 4 out of 5) (5 Mark Each)   **(20)**

1. Solve the following simultaneous equation using Cramer's Rule.
$$x + y + z = 4, 2x - 3y + 4z = 33, 3x - 2y - 2z = 2.$$

2. Differentiate using definition of Derivative of e^x.

3. Find the equation of circle having center (2, 1) and radius 2.

4. Find $\int e^{sinx} cosx \, dx$ using substitution method.

5. Find the Laplace transform of (i) $sin2t$ (ii) $1 + cos4t$

Q.3 Answer the following. (2 Mark Each)   **(20)**

1. Find adjoint of $\begin{bmatrix} 1 & -5 \\ 7 & -3 \end{bmatrix}$.

2. Find the slope of the line 5x-4y+8=0.

3.   If ΔABC the value of $cosA = \frac{3}{5}$ then find $sinA$.

4. Differentiate $xsinx$.

5. Find$\int sin3x + e^{-3x} \, dx$.

6. Find Laplace transform of $2t^3 + e^{2t}$.

7. Find order and degree of differential equation $\frac{d^3y}{dx^3} + \left(\frac{dy}{dx}\right)^5 = sinx$.

8. Find $sin^2 45° + tan^2 30°$.

9. What is the order of matrix $[2 \quad -3 \quad 1 \quad 7]$.

10. Differentiate $3^x + 3^3 + x^3$.