Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Pharm**
15PH106

1st Semester Back Examination 2019-20
REMEDIAL MATHEMATICS
BRANCH : B.Pharma
Max Marks : 100
Time : 3 Hours
Q.CODE : HB926

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.
The figures in the right hand margin indicate marks.

Part- I

Q1 **Only Short Answer Type Questions (Answer All-10)** **(2 x 10)**

a) Find the quadratic equation whose roots are 3 and 5.
b) What is non-singular matrix?
c) Define median with suitable example.
d) Find the value of $sin75^0$
e) Find the area of the triangle whose vertices are $A(6,3), B(-3,5) and\ C(4,-2)$
f) Write the equation to the straight line cutting off intercepts 3 and 2 from the axes.
g) Evaluate: $\lim_{x\to 3}(x+\frac{1}{x})$
h) Calculate the second derivative of $f(x) = 4 - x^2$
i) Evaluate: $\int \frac{x}{\sqrt{x+a}}dx$
j) Evaluate: $\int_{-2}^{1} 5\,dx$

Part- II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 x 8)**

a) Solve : $2x^4 + 9x^3 + 8x^2 + 9x + 2 = 0$
b) Solve by Cramer's rule the equations : $3x + 5y - 7z = 13$
$4x + y - 12z = 6$
$2x + 9y - 3z = 20$
c) If $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$, Prove that $A^3 = A^{-1}$
d) Find the mean for the following frequency distribution :

$\boldsymbol{Wages(Rs)}$:	20-30	30-40	40-50	50-60	60-70
$\boldsymbol{Number\ of\ labourers}$:	3	5	20	10	5

e) Find the value of $cos36^0$
f) Prove that the points are $(a,0),(0,b) and\ (1,1) are\ collinear\ if\ \frac{1}{a}+\frac{1}{b}=1$
g) Find the equations of the altitudes of the triangle whose vertices are $A(6,-1), B(3,-8) and\ C(3,2)$
h) Evaluate: $\lim_{x\to 0}(\frac{e^x+e^{-x}-2}{x})$
i) $if\ y = xlogy, prove\ that\ x\frac{dy}{dx} = \frac{y^2}{y-x}$
j) Find $\frac{dy}{dx}\ if\ y = (cosx)^{cosx}$
k) Solve: $\int \frac{1}{cos^2 x sin^2 x}dx$
l) Evaluate: $\int xsin\frac{x}{2}dx$

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 What are the types of matrices with suitable examples? **(16)**

Q4 Find the mean. median and mode from the following data : **(16)**

Wages (in Rs.)	20-30	30-40	40-50	50-60	60-70
No. of labourers	4	5	20	10	4

Q5 What is the slope point and two point form of a line? Find the equations of the straight line passing through $(a\cos\alpha, a\sin\alpha)\ and\ (a\cos\beta, a\sin\beta)$. **(16)**

Q6 What is partial fraction and Evaluate: $\int \frac{1}{(x^2+1)(x+1)}\,dx$ **(16)**