Printed pages: 02 **Sub Code: PHARM111M**

Paper Id: 150142 **Roll No.** | | | | | | | | | | |

B. PHARM.
(SEM I) THEORY EXAMINATION 2018-19
REMEDIAL MATHEMATICS

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections.

SECTION A

1. Attempt *all* questions in brief. 2 x10 = 20

a. Define odd function with example.

b. If A=$\begin{bmatrix} 3 & 3 & 1 \\ 0 & -1 & -9 \end{bmatrix}$ $and\ B$ =$\begin{bmatrix} 1 & 3 & -1 \\ 0 & -2 & 3 \end{bmatrix}$. Find A-3B.

c. Evaluate: $\lim_{x \to 2} \frac{x^2-6x+8}{x-2}$

d. Find the value of $'a'$ when the distance between the points $(3, a)\ and (4, 1)$ is $\sqrt{10}$.

e. Write equation of a straight line in normal form.

f. Compute $A \times B$ of matrices $A = \begin{bmatrix} 2 & -1 \\ 3 & 2 \end{bmatrix}$ $and\ B$ =$\begin{bmatrix} -2 & 3 \\ 2 & 4 \end{bmatrix}$.

g. If f(x) = x^2-1 and g(x) = 3x+1, find gof (x).

h. Form the quadratic equation whose roots are $\frac{1}{3}$ and $\frac{2}{3}$.

i. If y = sin 5x , find $\frac{dy}{dx}$.

j. Evaluate:$\int x\, e^{x^2}$ dx.

SECTION B

2. Attempt any *three* parts of the following: 10 x 3 = 30

a. Solve the following equation: (x + 2) = $\sqrt{(2x\ +7)}$

b. If A = $\begin{bmatrix} -1 & 3 & 4 \\ 4 & -2 & 1 \\ 1 & 2 & 4 \end{bmatrix}$, find A^{-1}.

c. Find the area of triangle whose vertices are : (-3 , -5) ,(3 , 2) ,(-2, -3)

d. Obtain the complete solution of the differential equation :(D^2 + 2D + 1) y =e^{2x} .

e. Evaluate: $\int \frac{\log(logx)}{x} dx.$

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) If f(x) = $\frac{1}{(1-x)}$ show that $f[f\{f(x)\}] = x$.

(b) Find the angle between the lines: x – y $\sqrt{3}$ - 5 = 0 and $\sqrt{3}$ x + y – 7 = 0

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Evaluate:$\lim_{x \to a} \left\{\frac{\cos x - \cos a}{x-a}\right\}$.

(b) Solve the following system linear equations by using matrix method.
5x + 2y = 5, 2x – y = 4

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Show that the following points are the vertices of a rectangle:
(0, -1), (-2, 3),(6 , 7) and (8 , 3).

(b) Solve the following system linear equations use by Crammer's rule.
x + 2y + 3z = 6, 2x + 4 y + z = 7, 3x + 2y +9 z =14.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) A year ago, the father age was 7 times as old as his son. Now , his age is the square of his Son's age. Find their present age.

(b) If y = $(\sin x)^{\log x}$, find $\frac{dy}{dx}$.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Evaluate : $\int \frac{dx}{a^2cos^2x + b^2 sin^2x}$.

(b) Find $\frac{dy}{dx}$, when $y = \cos x \,.\cos 2x \,.\cos 3x$.