Code No: B13102 **R13** SET - 1

I B. Pharmacy I Semester Supplementary Examinations, February - 2020
REMEDIAL MATHEMATICS-I

Time: 3 hours Max. Marks: 70

Note: 1. Question paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is Compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Find the number of four letter words that can be formed using the letters of the word MIXTURE which (i) contain the letter X (ii) do not contain the letter X. (4M)

b) Find the value of $\tan 75^0 - \cot 75^0$ (4M)

c) Show that the set of points (1, 3) ,(-2 ,-6) , (2, 6) are collinear. (4M)

d) Find the derivative of $\cos(x^2)$ (3M)

e) Find Laplace transform of sin at. (3M)

f) Evaluate $\int \cot x dx$ (4M)

PART -B

2. a) Find the term independent of x in the expansion of $\left(4x^3 + \frac{7}{x^2}\right)^{17}$ (8M)

b) show that $\begin{vmatrix} bc & b+c & 1 \\ ac & a+c & 1 \\ ab & b+a & 1 \end{vmatrix} = (a-b)(b-c)(c-a)$ (8M)

3. a) From a point on the ground, the angle of elevation of summit is found to be 45^0.After walking 150 mt towards the mountain , the angle of elevation of the summit is 60^0 . Find the height of the mountain. (8M)

b) Prove that $\frac{\sin A + \sin 5A + \sin 9A}{\cos A + \cos 5A + \cos 9A} = \tan 5A$ (8M)

4. a) Find the equation of the locus of a point which is equidistant from the A(-3,2) and B (0,4) (8M)

b) Transform the equation $5x - 2y - 7 = 0$ into (8M)
(i) Slope – Intercept form
(ii) Intercept form
(iii) Normal form

5. a) Check the continuity at x = 3 given by (8M)

$$f(x) = \begin{cases} \frac{x^2 - 9}{x^2 - 2x - 3} & if \ x \neq 3 \\ 1.5 & if \ x = 3 \end{cases}$$

b) Find the derivative of $y = (\tan x)^{\sin x}$ (8M)
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6. a) Evaluate $\int e^{2x} \cos 2x dx$ (8M)

b) Find the area of the curve y = $\left(a^2 - x^2\right)^2$ between x=0, x=a (8M)

7. a) Form a ODE by eliminating the constants 'c' from $y = 1 + x^2 + c\sqrt{1+x^2}$ (8M)

b) Solve the ODE $y\,dx - x\,dy + 3x^2 y^2 e^{x^3}\,dx = 0$ (8M)