

I B. Pharmacy I Semester Supplementary Examinations, May/June - 2019
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**

PART -A

1. a) Write first three terms in the expansion of $\left(1 + \frac{x}{2}\right)^{-5}$ (4M)
- b) Find $\sin 15^\circ$. (4M)
- c) Show that the points A(-5,1), B(5,5) and C(10,7) are collinear. (4M)
- d) Evaluate $\int \sec x(\sec x + \tan x) dx$ (4M)
- e) Show that $y = \cos x + c$ is a solution of the D.E $\frac{dy}{dx} + \sin x = 0$ (3M)
- f) Find $Lt_{x \rightarrow 0} \frac{3x^2 + 5x - 1}{x^2 - 2x + 6}$ (3M)

PART -B

2. a) If $A = \begin{bmatrix} 2 & 3 \\ 1 & -4 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -2 \\ -1 & 3 \end{bmatrix}$ then verify $(AB)^{-1} = B^{-1}A^{-1}$ (8M)
- b) Resolve $\frac{1}{(x+1)^2(x+2)}$ into partial fractions (8M)
3. a) If $A + B + C = \frac{\pi}{2}$, then prove that (8M)
 $\tan 2A + \tan 2B + \tan 2C = \tan 2A \tan 2B \tan 2C$
- b) Prove that $\sin 2A = 2 \sin A \cos A = \frac{2 \tan A}{1 + \tan^2 A}$ (8M)
4. a) Find the locus of point P such that $PA = 3PB$ where A (-9,0) and B(-1,0). (8M)
- b) Prove that the set of points lie on a straight line and find its equation (8M)
 (2,1), (-1,2), (-4,3).
5. a) Evaluate $\int \frac{\sin x}{\sin(x+a)} dx$ (8M)
- b) Evaluate $\int \frac{dx}{(x+1)(x+2)}$ (8M)
6. a) Solve the D.E $\frac{dy}{dx} = \frac{x+1}{2-y}$ (8M)
- b) Find the $L(e^{-2t}t^2 + \sin 3t)$ (8M)
7. a) Find the derivate of $\sin^{-1} \sqrt{x}$ (8M)
- b) Find the derivate of $x^2 + x$ using fundamental theorem. (8M)