

Subject Code: B13102/R13

I B. Pharmacy I Semester Regular/Supplementary Examinations Feb. - 2015

**REMEDIAL MATHEMATICS-I**

Time: 3 hours

Max. Marks: 70

Question Paper Consists of **Part-A** and **Part-B**  
Answering the question in **Part-A** is Compulsory,  
Three Questions should be answered from **Part-B**

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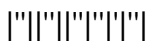
**PART-A**

- 1.(a) Find the no of permutations that can be made using the letters of the word 'ALGEBRA'.
- (b) Simplify  $\sin(45^\circ + A)\sin(45^\circ - A)$ .
- (c) Find the centroid if the triangle whose vertices are (3, 1), (-5, 2) and (-1, 6).
- (d) Find  $\lim_{x \rightarrow 0} \frac{\tan(\sin x)}{x}$ .
- (e) Evaluate  $\int \frac{\log x \cdot \log(\log x)}{x} dx$ .
- (f) Solve  $y' + 2xy = e^{-x^2}$ . [3+4+4+3+4+4]

**PART-B**

- 2.(a) The 4<sup>th</sup> term of a geometric progression exceeds the second term by 24 and the sum of the 2<sup>nd</sup> and 3<sup>rd</sup> term is 6. Find the progression.
- (b) Find the value of  $\tan 75^\circ - \cot 75^\circ$ . [8+8]
- 3.(a) Solve the system of equations  $x + y + z = 8$ ;  $2x + 3y + 2z = 19$  and  $4x + 2y + 3z = 23$ , using Cramer's rule
- (b) The angle of elevation of the top of a tower from a point on the same level as the foot of the tower is  $15^\circ$ . On moving 100 m towards the tower, the angle of elevation increases to  $30^\circ$ . Find the height of the tower. [8+8]
- 4.(a) For what values of 'x', the area of the triangular region enclosed by the segments joining the points (3, 4), (x, -1) and (4, -6) will be 7.5 sq. units.
- (b) If  $f(x) = \begin{cases} 0, & \text{when } x^2 > 1 \\ 1, & \text{when } x^2 < 1 \\ \frac{1}{2}, & \text{when } x = 1 \end{cases}$ . Find whether  $f(x)$  is continuous at  $x = 1$  and  $x = -1$

[8+8]



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5.(a) Find the equation of the straight line passing through (1, 1) and perpendicular to the line passing through (3, 5) and (-6, -2).

(b) Find the derivation of  $\frac{e^x x^2}{\log x}$ .

[8+8]

6.(a) Evaluate  $\int_0^{\pi/2} \log(\tan x) dx$ .

(b) Find the differential equation from the equation  $y = Ax^3 + Bx^2$ .

[8+8]

7.(a) Find the area lying between the curves  $y = x^2$  and the straight lines  $y = 0$ ,  $x = 1$  and  $x = 2$ .

(b) Solve  $\frac{dy}{dx} = \frac{x-y}{x+y}$ .

[8+8]

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