

Code: 9RBS101

R09

B.Pharm I Year (R09) Supplementary Examinations June 2018

**REMEDIAL MATHEMATICS**

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Find the independent term of  $x$  in expression of  $\left(x^2 + \frac{1}{x}\right)^9$ .  
(b) Solve  $2x + 3y - 1 = 0$ ,  $3x - y + 2 = 0$  by Cramer's rule.
- 2 (a) Prove that  $\sin 20^\circ \cos 40^\circ + \cos 20^\circ \sin 40^\circ = \frac{\sqrt{3}}{2}$ .  
(b) A man on the top of cliff 100 m high observes the angle of depression of the two points on opposite sides of the cliff as  $30^\circ$  and  $60^\circ$  respectively. Find the distance between the two points.
- 3 (a) Find the area of the triangle formed by the straight line  $x - 4y + 2 = 0$  and the coordinate axis.  
(b) Find the angle between the straight lines  $3x + 5y = 7$ ,  $2x - y + 4 = 0$ .
- 4 (a) Find  $\lim_{x \rightarrow 4} \frac{3 - \sqrt{5+x}}{x-4}$ .  
(b) Find  $\frac{dy}{dx}$  when  $y = 9x^7 + 7x^5 + 6$ .
- 5 (a) Find the derivative of the following functions with respect to  $x$   
$$\frac{\sin x}{\sin x + \cos x}$$
  
(b) Find maxima and minima of function  $:x^2 + 6x + 10$ .
- 6 (a) Evaluate  $\int \left( \frac{ax^3 + bx^2 + cx + d}{x} \right) dx$ .  
(b) Evaluate  $\int_0^1 (2x^2 + 3x + 1) dx$ .
- 7 (a) Form the differential equation of  $xy = ae^x + be^{-x}$  where  $a, b$  are arbitrary constants.  
(b) Solve  $\frac{dy}{dx} = e^{x-y} + x^2 \cdot e^{-y}$ .
- 8 (a) Solve  $\frac{dy}{dx} = \frac{2xy}{x^2 + y^2}$ .  
(b) Solve  $x \frac{dy}{dx} + y = (1 + x)e^x$ .

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