

B.Pharm I Year (R13) Supplementary Examinations June 2017

REMEDIAL MATHEMATICS

Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
 - (a) Find the 10th term of the A.P., 2, 0, -2, 4.....
 - (b) If $x = 1 + \log_a bc$, $y = 1 + \log_b ca$ and $z = 1 + \log_c ab$, prove that $xyz = xy + yz + zx$.
 - (c) Prove that $(1 - \cos^2 \theta) \cdot \operatorname{Cosec}^2 \theta = 1$.
 - (d) Find the values of $\operatorname{Cosec} 60^\circ - \sec 45^\circ + \cot 30^\circ$.
 - (e) Find the distance between the points (2, 3) and (1, 3).
 - (f) Find the ratio in which P(-1, -12) divides the line joining the points A(3, 4) and B(1, -4).
 - (g) Evaluate $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$.
 - (h) Find $\frac{dy}{dx}$ when $y = 7x^2 + 9x + 12$.
 - (i) Determine the order and degree of the differential equations $\left(\frac{dy}{dx}\right)^3 + 5y = 0$.
 - (j) Find the Laplace transforms of $t^2 - 3t + 5$.

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 Find the sum of first 7 terms of the series 3, 12, 48,.....

OR

- 3 Resolve: $\frac{5x+2}{(1+3x)(1+2x)}$ into sum of partial fraction.

UNIT - II

- 4 Show that $\frac{\tan 69^\circ + \tan 66^\circ}{1 - \tan 69^\circ \tan 66^\circ} = -1$.

OR

- 5 If $\sin \phi = -\frac{5}{13}$ and ϕ is in third quadrant then find the value of $5\cot^2 \phi + 13\operatorname{cosec} \phi$.

UNIT - III

- 6 Find the equation of the straight line perpendicular to $5x - 3y + 1 = 0$ and passing through the points (4, -3).

OR

- 7 Find the acute angle between the two lines $3x + 5y = 7$ and $2x - y + 4 = 0$.

UNIT - IV

- 8 If $u = x^3 + y^3 - x^2y + xy^2$ then find the value of $x^2 \frac{\partial^2 u}{\partial x^2} + 2xy \frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2}$.

OR

- 9 Show that the area of a rectangle inscribed in a circle is maximum when it is square.

UNIT - V

- 10 Solve $(x + y)^2 \frac{dy}{dx} = a^2$.

OR

- 11 Find the Laplace transforms of $e^{2t}(2t^2 - 3t + 4)$.
