Code: 15R00101

R15

B.Pharm I Year I Semester (R15) Supplementary Examinations June 2017
REMEDIAL MATHEMATICS

Time: 3 hours   Max. Marks: 70

PART – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
 (a) If a = 2, d = 3 then find t_{10} also form the corresponding A.P.

 (b) For what value of x the number $\dfrac{-2}{7}, x, \dfrac{-7}{2}$ are in G.P.

 (c) If $180^o < \theta < 270^o$, $\sin\theta = \dfrac{-5}{13}$ then prove that $5\cot^2\theta + 12\tan\theta + 13\csc\theta = 0$.

 (d) If $270^o < \theta < 360^o$ and $\cos\theta = ¼$ find $\tan\dfrac{\theta}{2}$.

 (e) Find the ratio in which the line joining 2x + 3y +1 = 0 divides line segment joining the points (1, 4), (3, 2).

 (f) Find the equation of straight line in the symmetric form having slope $\sqrt{3}$ and passing through the point (2, 3).

 (g) $\frac{d}{dx}(5x^2 + 6\sin x)$ is ------

 (h) $\int x^2 e^{x^3} \cos(e^{x^3})\, dx$ ……

 (i) Form differential equation of $y = ae^{-x} + b$ by eliminating arbitrary constants.

 (j) Show that $L(1) = \dfrac{1}{s}$.

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

UNIT – I

2   Find the geometric progression whose sum of infinity is $4\frac{1}{2}$ and whose second term is –2.

OR

3   Resolve $\dfrac{x+3}{(1-x)^2(1+x^2)}$ in to partial fractions.

UNIT – II

4   If $\cos\theta > 0$; $\tan\theta + \sin\theta = m$; $\tan\theta - \sin\theta = n$ then show that $m^2 - n^2 = 4\sqrt{mn}$.

OR

5   If cot A + cot B + cot C = $\sqrt{3}$ prove that ABC is equilateral triangle.

UNIT – III

6   Find the equation of the straight line passing through point of intersection of lines $x - 2y - 3 = 0$, x + 3y − 6 = 0 and parallel to 3x + 4y = 7.

OR

7   Find the ortho centre of triangle formed by the points (-5, -7), (13, 2), (-5, 6).

UNIT – IV

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

OR

9   Evaluate $\int \dfrac{dx}{3\cos x + 4\sin x + 6}$.

UNIT – V

10   Solve $\dfrac{dy}{dx} = \dfrac{2xy}{x^2 + y^2}$.

OR

11   Find the Laplace transform of the following:
 (a) cosh at – cos at.
 (b) sin³2t.