

Code: 15R00101

B.Pharm I Year I Semester (R15) Regular & Supplementary Examinations January 2018
REMEDIAL MATHEMATICS

Time: 3 hours

Max. Marks: 70

PART – A
 (Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Which term of A.P 5, 2, -1, is -22?
 - Resolve $\frac{5x+6}{(2+x)(1-x)}$ into partial fractions.
 - Find the value of $\log \tan 1^\circ + \log \tan 2^\circ + \log \tan 3^\circ + \dots + \log \tan 89^\circ$.
 - Find the value of $\frac{\tan 40^\circ + \tan 20^\circ}{\cot 45^\circ - \cot 50^\circ \cot 70^\circ}$.
 - Show that the points A(-5,1), B(5,5) and C(10,7) are collinear.
 - Find the equation of line passing through the points (3,4) and (-7,-6).
 - Find the value of $\text{Lt}_{x \rightarrow 2} \frac{\sin(x-2)}{x^2-4}$.
 - Evaluate $\int \tan^2 x \, dx$
 - Form the differential equation $y = c(x+c)$, where c is parameter.
 - Find $L\{\cos 3t \cdot \cos t\}$.

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

UNIT – I

- Find the sum of n terms of sequence 6, 66, 666,
 - Given in a G.P, the third term is 24 and 6th term is 192. Find the 10th term.

OR

- Find the value of $\log_3 \left(1 + \frac{1}{3}\right) + \log_3 \left(1 + \frac{1}{4}\right) + \dots + \log_3 \left(1 + \frac{1}{80}\right)$.
 - Resolve $\frac{x^2+5x+7}{(x-3)^3}$ into partial fractions.

UNIT – II

- If $\text{cosec } \theta + \cot \theta = p$, show that $(p^2 + 1) \cos \theta = p^2 - 1$, where $p \neq 0$.
 - Show that $\cos 40^\circ + \cos 80^\circ + \cos 160^\circ = 0$

OR

- If $A + B = 45^\circ$ prove that $(1 + \tan A)(1 + \tan B) = 2$.
 - Prove that $\cos 24^\circ \cos 48^\circ \cos 96^\circ \cos 168^\circ = 3/16$.

UNIT – III

- Find k if $(k, 2k)(2k, 3k)$ and $(3, 1)$ are collinear.
 - Show that the points $(3, -2)$, $(7, 6)$, $(-1, 2)$ and $(-5, -6)$ taken in order form a rhombus.

OR

- Find the acute angle between the lines $y = 4 - 2x$; $y = 3x + 7$.
 - Find the equation of straight line passing through the point $(3, -4)$ and having intercepts whose ratio is 2:3.

UNIT – IV

- Find the derivative of $\tan(x^2 e^x)$ with respect to x.
 - Find all the points of maxima and minima of $(1-x)(x+3)^2$.

OR

- Evaluate $\int \frac{1}{1+\cos x} \, dx$
 - Evaluate $\int_0^1 \frac{x^2}{1+x^2} \, dx$

UNIT – V

- If the air is maintained at 30°C and the temperature of body cools from 80°C to 60°C in 12 minutes. Find the temperature of body after 36 minutes.

OR

- Find $L\{\sin^3 2t\}$.
 - Find $L\{e^{-t} \sin t \cos t\}$