

B.Pharm I Year I Semester (R15) Supplementary Examinations May/June 2018

REMEDIAL MATHEMATICS

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Find the 10th term of geometric progression 5, 5², 5³,
 - Resolve $\frac{5x+1}{(x+2)(x-1)}$ into partial fractions.
 - Find the value of $\sin 20^\circ \cos 40^\circ + \cos 20^\circ \sin 40^\circ$.
 - Find the value of $\cos^4 \theta - \sin^4 \theta$
 - Find area of triangle formed by the points (1, 2) (3, -4) and (-2, 0).
 - Find the value of x if the slope of the line joining (2,5) (x,3) is 2.
 - If $u = x^3 - y^2 - y \sin x$, then find $\frac{\partial u}{\partial x}, \frac{\partial u}{\partial y}$.
 - Evaluate $\int e^{4x+7} dx$.
 - Form the differential equation of $y = cx - 2c^2$, where c is a parameter.
 - Find the Laplace transform of $(\sin t - \cos t)^2$.

PART – B

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

UNIT – I

- 2 (a) The 6th term of an A.P is 12 and 8th term is 22 then find 3rd term.
 (b) Find the sum of n terms of sequence 7, 77, 777

OR

- 3 (a) Prove that $7 \log \frac{16}{15} + 5 \log \frac{25}{24} + 3 \log \frac{81}{80} = \log 2$.
 (b) Resolve $\frac{x+4}{(x^2-4)(x+1)}$ into partial fractions.

UNIT – II

- 4 (a) If $\tan 20^\circ = \lambda$, prove that $\frac{\tan 160^\circ - \tan 110^\circ}{1 + \tan 160^\circ \tan 110^\circ} = \frac{1 - \lambda^2}{2\lambda}$.
 (b) Prove that $\tan 70^\circ - \tan 20^\circ = 2 \tan 40^\circ + 4 \tan 10^\circ$.

OR

- 5 (a) Show that $\frac{1}{\sin 10^\circ} - \frac{\sqrt{3}}{\cos 10^\circ} = 4$.
 (b) Prove that $4 \sin 20^\circ \sin 40^\circ \sin 60^\circ \sin 80^\circ = 3/4$

UNIT – III

- 6 (a) Find the value of t if the points (t, 2t) (2t, 6t) and (3, 8) are collinear.
 (b) Show that the points (-3, 1) (-6, -7) (3, -9) and (6, -1) taken in order form a parallelogram.

OR

- 7 (a) Find the acute angle between two lines $3x+5y = 7$, $2x-y = -4$.
 (b) Find the equation of line having intercepts a, b on the axes such that $a+b = 5$, $ab = 6$.

UNIT – IV

- 8 (a) Find the derivative of $\sqrt{\cos \sqrt{x}}$ with respect to x.
 (b) Find all the points of maxima and minima of the function $(x-1)(x+2)^2$.

OR

- 9 (a) Evaluate $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx$
 (b) Evaluate $\int_0^3 \frac{1+x}{1-x} dx$

UNIT – V

- 10 A body is originally at 80° C cools down to 60°C in 20 minutes. The temperature of air being 40°C. What will be the temperature of the body after 40 minutes?

OR

- 11 (a) Find $L\{e^{2t} + 4t^3 - 2 \sin t + 3 \cos t\}$.
 (b) Find $L\{\cosh at \cdot \sin bt\}$.
