[Total No. of Questions - 9] [Total No. of Printed Pages - 2]

Dec.-23-0063

BP-106RMT (Remedial Mathematics)

B.Pharm. 1st (PCI)

Time : 1½ Hours **Max. Marks : 35**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt any ONE question from Section A. Each question carry 10 marks. Attempt any FIVE questions from Section B. Each question carry 5 marks.

SECTION - A

1. Factorize the polynomial:

   $x^4 + 2x^3 - 13x^2 - 14x + 24$ (10)

2. Solve the equations by any method:

   $x + y + z = 3$; $2x - y + z = 2$; $x - 2y + 3z = 2$

   Hence for above equations (taking A matrix to be the coefficients of x, y and z), verify that A (adj A) = (adj A) A. (10)

SECTION - B

3. Solve the equation:

   $\log_4 x + \log_4 (x - 6) = 2$

4. Find the general solution of the equation:

   $dy/dx + y = 5 - x$

5. Find the Laplace transform of the following functions:

   $e^{5x} + 6x^3 - \sin 4x + 3 \sin 3x$

6. Differentiate w.r.t. x:

   (i) $\log 2x \cos 3x$

   (ii) $(4x^5 + 7x) / (3x - x^4)$

7. Show that the points A (0, 5), B (–2, –2), C (5, 0) and D (7, 7) are the vertices of a rhombus.

8. Integrate w.r.t. x:

   $(3x - 1) / [x^2 - 7x + 10]$.

9. Solve the following expression:

   $$\frac{(3x-2)}{(x^2+4x-12)} - \frac{5}{(2x+12)}$$ (5×5=25)