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D-BP-107

B. Pharmacy (Ist Semester)

Examination, 2021

Paper - VI

REMEDIAL MATHEMATICS

Time Allowed : Three Hours

Maximum Marks : 35

Note : Every question is compulsory. Each question carry equal marks.

UNIT-I

Q. 1. (a) Write the partial fraction of following function :

$$\frac{x-25}{x^2+5x-24}$$

(b) Find the limit of function at x = 1 :

$f(x) = 5x - 4$ when $o < x \leq 1$

$4x^2 - 3x$ when $1 < x < 2$

OR

(a) Write the partial fraction of following function :

$$\frac{8x-42}{x^2+3x-18}$$

(b) Write the classification of real valued functions.

UNIT-II

Q. 2. Apply Cramer's rule to solve the following equation :

$3x + y + 2z = 3$

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

$x + 2y + z = 4$

OR

Verify Cayley-Hamilton theorem for the following matrix A :

$$A = \begin{bmatrix} 1 & 1 & 2 \\ 9 & 2 & 0 \\ 5 & 0 & 3 \end{bmatrix}$$

Also find A^{-1}.

UNIT-III

Q. 3. (a) Differentiate $\frac{\cos x}{\sin x + \cos x}$.

(b) Differentiate $x \sin x + e^x$.

OR

(a) Differentiate $\frac{1+\sqrt{x}}{1-\sqrt{x}}$.

(b) Differentiate $\log(\sec x + \tan x)$.

UNIT-IV

Q. 4. (a) Write the equation of the straight line which is parallel to $5x - 7y = 0$ and passing through the point (2, 3).

(b) Find the slope of a straight line which passes through points (–5, 7) and (–4, 8).

OR

(a) Find the equation of a straight line that passes through the point (–2, 3) and perpendicular to the straight line $2x + 4y + 7 = 0$.

(b) Find the slope of a straight line which passes thorugh (4, 5) and (2, 3).

UNIT-V

Q. 5. (a) Solve the equation :

$$\frac{dy}{dx} - y = xe^x$$

(b) Find the Laplace transform of $f(t) = e^{-at}$.

OR

(a) Solve the following differential eq^n :

$$\frac{dy}{dx} = \frac{xy + y^2}{x^2 - xy}$$

(b) Find the inverse Laplace transform of :

$$F(s) = \frac{s^2 + s + 1}{s^3 + s}$$