

BACHELOR OF PHARMACY (B. PHARM.) (CBCS-2019 COURSE)

B. Pharm. Sem-I : WINTER : 2021

SUBJECT: REMEDIAL MATHEMATICS

Day : Monday
Date : 24-01-2022

W-21326-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 35

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of **log table** is allowed.

Q.1 Attempt any **ONE** of the following: **(10)**

- a) If $f(x)$ and $g(x)$ are two functions, then prove that

$$\frac{d}{dx} \left[\frac{f(x)}{g(x)} \right] = \frac{g(x) \frac{d}{dx} (f(x)) - f(x) \frac{d}{dx} [g(x)]}{[g(x)]^2}$$

Hence find $\frac{d}{dx} \left(\frac{3^x}{\sqrt{x}} \right)$

- b) If $L\{f(t)\} = F(s)$ and $g(t)$ is a function

such that $g(t) = f(t-a), t \geq a$
 $= 0, t < a$

then prove that $L\{g(t)\} = e^{-as} F(s)$. Also find $L\{\cosh at\}$.

Q.2 Attempt any **FIVE** of the following: **(25)**

- a) Decompose $\frac{2x-3}{(x-1)(x^2+1)^2}$ into partial fractions.

- b) Evaluate by using log table. $\frac{6312 \times 10^{-2}}{0.024 \times 1.321}$

- c) Solve the differential equation.

$$x dx + y dy + \frac{x dy - y dx}{x^2 + y^2} = 0$$

- d) Evaluate $\int_{-\pi/2}^{\pi/2} \sin^2 x dx$

- e) Find the inverse of the matrix.

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

- f) Solve the following system of linear equations by Cramer's rule.

$$x + y = 5, y + z = 3, x + z = 4.$$

- g) Find the angles of a triangle whose vertices are $A(3,4)$, $B(4,4)$ and $C(4,5)$.

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