

Assignment 2

Chapter-12:

Differentiation

EE24BTECH11049
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1) If $y = (x + \sqrt{1 + x^2})^n$, then $(1 + x^2) \frac{d^2y}{dx^2} + x \frac{dy}{dx}$ is

[2002]

- a) n^2y b) $-n^2y$ c) $-y$ d) $2x^2y$

2) If $f(y) = e^y$, $g(y) = y$; $y > 0$ and $F(t) = \int_0^t f(t-y)g(y)dt$, then

[2003]

- a) $F(t) = te^{-t}$
b) $F(t) = 1 - te^{-t}(1+t)$
c) $e^t - (1+t)$
d) $F(t) = te^t$

3) If $f(x) = x^n$, then the value of $f(1) - \frac{f'(1)}{1!} + \frac{f''(1)}{2!} - \frac{f'''(1)}{3!} + \dots + \frac{(-1)^n f^{(n)}(1)}{n!}$ is

[2003]

- a) 1 b) 2^n c) $2^n - 1$ d) 0