Assignment 2
Chapter-12: Differentiation

EE24BTECH11049
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1) If $y=\left(x+\sqrt{1+x^2}\right)^n$, then $\left(1+x^2\right)\frac{d^2y}{dx^2}+x\frac{dy}{dx}$ 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 $f(1)-\frac{f'(1)}{1!}+\frac{f''(1)}{2!}-\frac{f'''(1)}{3!}+\ldots\frac{(-1)^n f^n(1)}{n!}$ is

[2003]

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