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) $n^2.y$
   (b) $-n^2.y$
   (c) $-y$
   (d) $2.x^2.y$
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) $F(()t)=t.e^{-t}$
   (b) $F(()t)=1-t.e^{-t}.(1+t)$
   (c) $e^t-(1+t)$
   (d) $F(()t)=t.e^t$
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