Assignment 2
Chapter-12:
Differentiation

EE24BTECH11049
Patnam Shariq Faraz Muhammed

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