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