$y(0) = 0$

$y = a_0 + a_1 x + a_2 x^2 \ldots$

$y(0) = a_0 + 0 + 0 + \ldots = C$

$\therefore a_0 = 0$

$a_1 = \frac{a_0}{1} = a_0 = C \quad a_2 = \frac{a_1}{2} = \frac{a_0}{1 \times 2} = \frac{a_0}{2!} = \frac{C}{2!}$

$a_3 = \frac{a_2}{3} = \frac{a_0}{3 \times 2 \times 1} = \frac{a_0}{3!} = \frac{C}{3!}$

In general $a_n = \frac{a_0}{n!}$

$\therefore y(x) = C + \frac{Cx}{1!} + \frac{C}{2!}x^2 + \ldots \frac{Cx^n}{n!} + \ldots$

$= C\left(1 + \frac{x}{1!} + \frac{x^2}{2!} + \ldots + \frac{x^n}{n!} + \ldots\right)$

$= Ce^x$

$y(x) = C + Cx + \frac{Cx^2}{2} + \frac{Cx^3}{6} + \frac{Cx^4}{24} + \frac{Cx^5}{120}$