1) $G(x) = \left(\frac{x}{1!} + \frac{x^3}{3!} + \frac{x^5}{5!} + \dots \right)\left(1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \dots \right)\left(1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots \right)^3$

Since $e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$, $e^{-x} = 1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + \dots$

$\therefore \left(1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \dots \right) = \frac{1}{2}\left(e^x + e^{-x}\right)$

$\therefore \left(x + \frac{x^3}{3!} + \frac{x^5}{5!} + \dots \right) = \frac{1}{2}\left(e^x - e^{-x}\right)$

$G(x) = \frac{1}{2}\left(e^x - e^{-x}\right) \cdot \frac{1}{2}\left(e^x + e^{-x}\right)e^{3x}$

$\qquad = \frac{1}{4}\left(e^{5x} - e^{x}\right)$ $a_n = \frac{1}{4}\left(5^n - 1\right)$

$\boxed{G(x) = \frac{1}{4}\left(\sum_{n=0}^{\infty}(5^n - 1)\frac{x^n}{n!}\right)}$ $\boxed{a_6 = \frac{1}{4}(5^6 - 1) = 3096}$

2) $m = 3$

2) Problem involving catalan numbers. One person must return the book before another one borrows it. Therefore,

$\boxed{C_3 = C(6,3) - C(6,2) = 5}$