Problem 1 *Compute*

$$E\left(\left(\int_0^t (1 + B_s + B_s^2 + B_s^3) dB_s\right)^2\right).$$

Problem 2 *Let*

$$g(t) = \sum_{n=1}^{\infty} \frac{t^n}{n^n} = t + \frac{t^2}{2^2} + \frac{t^3}{3^3} + \dots.$$

Compute the power series expansion of $E(g(B_s))$.