1995 Paper 2 Question 24

Probability

Find the probability generating function of the discrete uniform random variable X distributed on

$$\{-a, -a+1, -a+2, ...b-1, b\}$$

A *tail generating function* $T(s)$ for a discrete random variable X is defined as

$$T(s) = \sum_{n=-\infty}^{\infty} P(X > n)s^n$$

Give the relation between a probability generating function and the tail generating function for $X > n$, and hence obtain the tail generating function in this case.

[20 marks]