MATH 3012-QHS: Applied Combinatorics
Fall 2020
Quiz 3

Name: _____

True–False:

1. The number of partitions of an integer n into even parts is equal to the number of partitions of n into parts, all of which have the same size.
2. Generating functions of the form $f(x) = \sum_{n=0}^{\infty} a_n x^n$ are only applied in combinatorics when they are a Taylor series.
3. $f(x) = \sum_{n=0}^{\infty} a_n x^n$ is the form of exponential generating functions.
4. When $p(A)$ is a polynomial in the advancement operator A and the degree of this polynomial is $d = 5^2 \cdot 7^4$, the solution space to the equation $p(A)f(n)$ is a vector space whose dimension is $d(1 - \frac{1}{5})(1 - \frac{1}{7})$.
5. $(A - 5)f(n) = 8 \cdot 5^n$ has solution $f(n) = c \cdot 5^n$ where c is constant.