TOPIC : 12 – Tutorial 6

1. Using generating functions to solve the recurrence relation $a_{n+2}-8a_{n+1}+15a_n=0$, $n \geq 0$ with, $a_1= 8$, $a_0=2$.
2. Use the generating functions to solve the recurrence relation $a_n+3a_{n-1}-4a_{n-2}=0$, $n \geq 2$ with the initial condition $a_0=3$, $a_1= -2$
3. Use the method of generating functions to solve the recurrence relation $a_n=4a_{n-1}-4a_{n-2}+4^n$; $n \geq 2$ given that $a_0=2$, $a_1= 8$
4. Find the number of integers between 1 and 250 both inclusive that are divisible by any of the integers 2,3,5,7.
5. Determine the number of positive integers n, $1 \leq n \leq 1000$ that are not divisible by 2,3 or 5 but are divisible by 7.