**Python Tasks – Day16**

1. **Write a program to implement these formulae of permutations and combinations.**

**Number of permutations of n objects taken r at a time is: function name permutation**

**p(n,r) = n! / (n-r)!**

**Number of combinations of n objects taken r at a time is: function name combination**

**c(n,r) = n! / ( r! \* (n-r)! )**

**or c(n,r) = p(n,r) / r!**

1. **Write a python function prime\_factor to find out the prime factors of a number. Some examples of prime factors are –**

**Prime factors of 56 – 2, 2, 2, 7**

**Prime factors of 98 – 2, 7, 7**

**Prime factors of 121 – 11, 11**

1. **Write a function cubesum() that accepts an integer and returns the sum of the cubes of individual digits of that number**
2. **Write a function isLeap() which inputs a year and return 1 if the year is leap otherwise 0.**
3. **Two different numbers are called amicable number if the sum of the proper divisors of each is equal to the other number. For example 220 and 284 are amicable numbers.**

**Sum of proper divisors of 220=1+2+4+5+10+11+20+22+44+55+110=284**

**Sum of proper divisors of 284=1+2+4+71+142=220.**

**Write a function to print pairs of amicable numbers in a range.**