Assignment Questions 9

Question 1

Given an integer `n`, return `true` *if it is a power of two. Otherwise, return* `false`.

An integer `n` is a power of two, if there exists an integer `x` such that `n == 2x`.

Example 1:
Input: n = 1

Output: true

Example 2:
Input: n = 16

Output: true

Example 3:
Input: n = 3

Output: false

Question 2

Given a number n, find the sum of the first natural numbers.

Example 1:

Input: n = 3

Output: 6

Example 2:

Input : 5

Output : 15

Question 3

Given a positive integer, N. Find the factorial of N.

Example 1:

Input: N = 5

Output: 120

Example 2:

Input: N = 4

Output: 24

Question 4

Given a number N and a power P, the task is to find the exponent of this number raised to the given power, i.e. N^P.

Example 1 :

Input: N = 5, P = 2

Output: 25

Example 2 :

Input: N = 2, P = 5

Output: 32

Question 5

Given an array of integers **arr**, the task is to find maximum element of that array using recursion.

Example 1:

Input: arr = {1, 4, 3, -5, -4, 8, 6};
Output: 8

Example 2:

Input: arr = {1, 4, 45, 6, 10, -8};
Output: 45

Question 6

Given first term (a), common difference (d) and a integer N of the Arithmetic Progression series, the task is to find Nth term of the series.

Example 1:

Input : a = 2 d = 1 N = 5
Output : 6
The 5th term of the series is : 6

Example 2:

Input : a = 5 d = 2 N = 10
Output : 23
The 10th term of the series is : 23

Question 7

Given a string S, the task is to write a program to print all permutations of a given string.

Example 1:

Input:

S = "ABC"

Output:

"ABC", "ACB", "BAC", "BCA", "CBA", "CAB"

Example 2:

Input:

S = "XY"

Output:

"XY", "YX"