**CSE – 102 (A1)**

Online – 01

Total Marks : **10** Time: **1 hr**

Directions:

1. Always compile your codes and test it after completing each small steps.
2. Save your works in any drive other than C. Codes saved in C drive might be lost if the PC gets restarted.
3. Ask your teachers anything if you don’t understand a problem. Please don’t ask about your solution or how to solve any problem during online.

**PROBLEMSET**

1. **FizzBuzz Test 3**  
   Write a program that prints the numbers from 1 to 100. But for the multiples of 3 print “Fizz” instead of the number and for the multiples of 5 print “Buzz”. For numbers which are multiples of both 3 and 5 print “FizzBuzz”.  
     
   **Sample Output**:

* 1 2 Fizz 4 Buzz … 98 Fizz Buzz

1. **Grading Problem** **3**Consider a grading system which assigns a grade to obtained marks according to the following table.

|  |  |
| --- | --- |
| Marks | **Grade** |
| 0-29 | F |
| 30-39 | D |
| 40-49 | C |
| 50-59 | B |
| 60-69 | A- |
| 70-79 | A |
| 80-100 | A+ |

Now you are given a mark as input. Convert it into a suitable grade. **You must use switch-case statement for this purpose**.  
  
**Sample Input/Output**:

* Please enter your marks : 45
* Your grade is : C

*Clue:* *For every number in [30,39], integer division by 10 always gives the same result, 3.*

1. **Sequence**An **arithmetic sequence** is a **sequence** of numbers such that the difference between the consecutive terms is constant while a geometric sequence, is a sequence of numbers where each term after the first is found by multiplying the previous one by a fixed, non-zero number called the common ratio.  
   For instance, the **sequence** 5, 7, 9, 11, 13, 15 … is an **arithmetic sequence** with common difference of 2. Again, the **sequence** 2, 6, 18, 54 … is a **geometric** **sequence** with common ratio 3.  
     
   Write a C program which will take input **first 3 terms of a sequence** and another integer **n**. The tasks of the program are:  
     
   (a) Determine whether it is an arithmetic sequence or geometric sequence. **1**   
   (b) Output the term. **1**  
   (c) Output the sum of n terms. **2**  
     
   For task (a), If the given sequence is arithmetic, print “ARITHMETIC”; if geometric, print “GEOMETRIC”; otherwise, print “NONE”. For the last case, you don’t need to output anything for task (b) and (c).  
     
   For task (b) and (c), you may use loop or any mathematical formula.