Department of Scientific Computing, Modeling and Simulation

SC: 504 - Computational Lab - I

Test - 3

Sem - I, M.Sc.(Scientific Computing)

Roll-No & Name : MS2513 KAMOD KUNAL

Time: 10:15 AM to 11:15 AM | Date: September 16, 2025 | Max mark: 20

1. **Attempt ALL**

(a) Write a **C program** that takes a **negative integer** n as input. (4)

Using a `while` loop, iterate from 1 down to n (inclusive). For each number, display an output based on the following rules:

- If the number is divisible by both 3 and 5, print: `"Epic Combo!"`
- If the number is divisible by both 2 **and** 3, print: `"FizzTwos!"`
- If the number is divisible by 5 `"Buzz Deep!"`
- If the number is divisible by 3 only, print: `"Fizz"`
- If the number is divisible by neither 2, 3, nor 5, print: `"Chill"`

Example : Input: -7

Output:

```
-1: Chill
-2: Chill
-3: Fizz
-4: Chill
-5: Buzz Deep!
-6: FizzTwos!
-7: Chill
```

(b) Write a C program that prints the following pattern using a `while` loop: (4)

Accept `n` from the user. For example `n = 5`, the output should be:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(c) Write a C program that: (6)

1. Reads `n` integers into a dynamically allocated array.
2. Uses a loop to calculate the **average** of the elements in the array.
3. Prints the average.

Note : If your roll number is even solve using `for` loop, else make use of `while` loop.

Example Input:

```
5
10 20 30 40 50
```

Example Output:

```
The average of the array elements is: 30
```

(d) Write a C program that: (6)

1. Reads n integers into a dynamically allocated array.
2. Uses a `for` loop with `if--else if--else` conditions to count how many numbers are:
   - Positive
   - Negative
   - Zero
3. Uses **nested loops** to print all pairs of elements in the array where the sum of the pair is positive.

Example Input:

```
5
3 -1 0 4 -2
```

Example Output:

```
Positive count: 2
Negative count: 2
Zero count: 1
Pairs with positive sum:
(3, -1)
(3, 0)
(3, 4)
(3, -2)
(-1, 4)
(0, 4)
(4, -2)
```

— Why don't programmers like nature? — Too many bugs! —