SC: 504 - Computational Lab - I

Test - 1

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

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Time: 10:15 AM to 11:15 AM   Date: August 14, 2025   Max mark: 20

1. Attempt ALL

(a) Accept a number from the user and check for divisibility conditions. Use **nested if-else** statements to implement the logic.

Display the output based on the following rules:

- If the number is divisible by both 3 and 5, print: "FizzBuzz Trap!"
- If the number is divisible by 3 only, print: "Fizz"
- If the number is divisible by 5 only, print: "Buzz"
- If the number is divisible by neither, print: "Safe"

(3)

(b) Given n and m, find the first number greater than n that is divisible by m using one loop.

(4)

(c) Write a program that:

- Reads the marks of n students (integer values between 0 and 100).
- Uses a for loop to process each student's marks.
- Inside the loop, uses a nested if{else if structure to classify:
    - If marks $\geq$ 90, print "Grade A".
    - Else if marks $\geq$ 75, print "Grade B".
    - Else if marks $\geq$ 60, print "Grade C".
    - Else if marks $\geq$ 40, print "Grade D".
    - Else, print "Fail".

Example: For $n = 5$ and marks $\{95, 82, 61, 47, 30\}$, the output should be:

Grade A
Grade B
Grade C
Grade D
Fail

(6)

(d) Print an $n \times n$ checkerboard where:

- Use an outer while loop for rows.
- Use an inner for loop for columns.
- If the sum of the row and column index is even, print the current number (incrementing each time).
- If the sum is odd, print - instead.

Example: For $n = 4$, the output should be:

```
1 - 2 -
- 3 - 4
5 - 6 -
- 7 - 8
```

(7)

— I would tell you a joke about **UDP**... but you might not get it. —