Name:.....

Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING
KOTHAMANGALAM – 686666
(Govt. Aided Autonomous Institution)
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

B. TECH FIRST SERIES EXAMINATION, OCTOBER 2026

(S1 ECE A) B24ES1T01A PROBLEM SOLVING AND PROGRAMMING TECHNIQUES

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1 What is the output of the following code block? Justify your answer. (CO1) 3 marks

```
#include<stdio.h>
void main ( )
{
    int a = 5, b = 4;
    printf("%d %d %d", a & b, a | b, a<<2);
}
```

2 Explain any three operators used in C programming. (CO1) 3 marks

3 (CO1) 3 marks

Predict the output of the following C program and justify your answer.

```
#include <stdio.h>
void main()
{
   int i = 1;
   do {
         printf("%d ", i);
         i *= 2;
   } while (i < 10);
}
```

4 Write a C program to compute the sum of first N natural numbers. (CO2) 3 marks

PART B

Answer all questions. Each question carries 14 marks.

5 a) Draw a flowchart and algorithm to read a positive number as input and check if the number is even or odd. (CO1) 7 marks

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b) Discuss the various data types in C along with its size and control string. (CO1) 7 marks

6 a) Write a C program to read a student's marks in three subjects, each out of 100. Compute the total marks and overall percentage. Also display the final grade according to the following criteria: (CO2) 7 marks

Grade	Percentage
S	90–100%
A	80–89%
B	70–79%
C	60–69%
D	40–59%
Failed	Below 40%

b) Write an algorithm and a C program to input a number and to compute factorial of the number (CO2) 7 marks

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