Name:.....
Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM – 686 666

(GOVERNMENT AIDED AUTONOMOUS)

B.TECH FIRST SERIES EXAMINATION, OCTOBER 2026
(S1 CS, CD(A & B), AH)

B24ES1T01A PROBLEM SOLVING AND PROGRAMMING TECHNIQUES(A)

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. Find the output of the following code snippet:

```
void main()
{ int x = 100;
  printf("%d/n", 10 + x++);
  printf("%d/n", 10 + ++x);
}
```

(CO1)

2. Give suitable data type for the following: (i) car_mileage (ii) age (iii) account_no (CO1)

3. What is the output of the following code snippet? Justify your answer.

```
int main() {
    int n=2;
    switch (n) {
        case 1:
            printf(”Good Afternoon\n”);
        case 2:
            printf(”Good Evening\n”);
```

(P.T.O)

VISION

“To mould competent computing professionals, innovators, and leaders guided by ethical values and committed to technological advancement and sustainable societal development.”

MISSION

- Provide quality education through strong theoretical foundations, experiential learning, and exposure to emerging computing technologies.
- Cultivate critical thinking, research aptitude, and innovation through problem-based learning, industry interaction, and research initiatives.
- Foster ethical values, leadership, social responsibility, and an aspiration for lifelong learning through professional practices, teamwork, and mentoring.

```
        case 3:
            printf("Good Morning\n"); }
    return 0;}
```

(CO2)

4. Compare and contrast break & continue statements. (CO2)

PART B

Answer all questions. Each question carries 14 marks.

5. (a) Draw a flowchart to read a positive number as input and find the factorial of the number. (CO1) (7 marks)

   (b) Write an algorithm to design a shopping cart system that accepts the prices of n items in a shopping cart and calculates the total amount. If the total amount exceeds rupees 5000, apply a discount of 20%. Display the total amount, discount amount, and final payable amount. (CO1) (7 marks)

6. (a) Write a C program to print the following pattern for n rows. For e.g; if n= 4, Output is:
   1 2 3 4
   1 2 3
   1 2
   1
   (CO2) (7 marks)

   (b) Compare and contrast while & do-while loop using example program. (CO2) (7 marks)

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