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

MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS),
KOTHAMANGALAM - 686666
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
B.TECH FIRST SERIES EXAMINATION, AUGUST 2026 (S5 CS, DS, AIML)
B24CS3T03 COMPILER DESIGN

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. Identify the lexemes and its corresponding tokens in the statement

```
int sum = 0, a;
if(a >= 100)
    sum = a + 50;
```

2. Eliminate the left recursion for the following grammar:

$$S \rightarrow SS \mid AB$$
$$A \rightarrow Aa \mid a$$
$$B \rightarrow Bb \mid b$$

3. Find the FIRST and FOLLOW sets for the following grammar:

$$X \rightarrow XSb \mid Sa \mid b$$
$$S \rightarrow Sb \mid Xa \mid a$$

4. What is handle pruning? Illustrate the concept with a suitable example.

PART B

Answer all questions. Each question carries 14 marks.

5. Design lexical analyzer for tokens such as keyword, identifier, unsigned number, arithmetical operator and relational operator. Implement the lexical analyzer in C. (14 marks)

6. Construct predictive parsing table and perform parsing for " true or false and true"

$$E \rightarrow E \text{ or } T \mid T$$
$$T \rightarrow T \text{ and } F \mid F$$
$$F \rightarrow \text{not } F \mid (E) \mid \text{true} \mid \text{false}$$

(14 marks)

VISION

Mould competent professionals to serve as a valuable resource for society in pursuit of excellence.

MISSION

- Provide quality education in Computer Science to equip with cutting-edge technologies.
- Mould disciplined and socially committed engineers capable of professional leadership.
- Promote theoretical and practical understanding, along with critical thinking and logical reasoning.