

Paper ID [CS506]

(Please fill this Paper ID in OMR Sheet)

M. Tech.

COMPILER DESIGN (CS - 506)

Time : 03 Hours

Maximum Marks : 100

Instruction to Candidates:

- 1) Attempt any **Five** questions.
- 2) All questions carry equal marks.

Q1) (a) Construct a dag for the following basic block:

$$D := B * C$$

$$E := A + B$$

$$B := B * C$$

$$A := E - D$$

(b) Explain in brief about intermediate code optimization algorithms.

Q2) Discuss in detail the approach to the design of lexical analyzer with example.

Q3) Explain the various phases of a compiler with the help of neat and clean diagram.

Q4) (a) Write quadruples, triples and indirect triples for the expression
 $-(A + B) * (C + D) - (A + B + C)$

(b) Define FSM. Explain the application of FSM in the design of 'LEXICAL ANALYZER'.

Q5) (a) Construct LALR parsing table for the following grammar:

$$S^1 \rightarrow S$$

$$S \rightarrow CC$$

$$C \rightarrow Cc$$

$$C \rightarrow d$$

(b) Explain the application of grammar in the design of 'COMPILER'.

Q6) (a) Explain how error recovery can be performed in Shift-Reduce Parsing.

(b) What is syntax directed translation scheme.

Q7) (a) Consider the following grammar:

$$E \rightarrow E + E \mid E * E \mid (E) \mid id$$

Explain the stack implementation of shift reduce parsing for the string:

$$id1 * id2 + id3$$

(b) Distinguish between Top-down and Bottom-up Parsing Techniques.

Q8) Explain

(a) Loop optimization

(b) Phase and syntax trees