Exam.Code:0918
Sub. Code: 6795

1058

B.E. (Computer Science and Engineering)
Sixth Semester
CS-604: Compiler Design

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

I.
a. Why the process of compilation is divided into various phases? List various phases in compilation process.
b. Differentiate between S-attributed and L-attributed definitions.
c. What are predictive parsers?
d. What are the common forms of intermediate code representation?
e. Define the terms: token, pattern and lexeme.

(2 marks each)

Section-A

II.
a. Describe in detail analysis and synthesis model of compilation.
b. What are tokens? How are they specified? Describe in brief, how tokens are recognized by lexical analyzer?

(5, 5)

III.
a. What is left recursion? What are the problems that arise due to left recursion in the design of top-down parser? Eliminate left recursion from the grammar:

$$S \rightarrow (L)|a$$
$$L \rightarrow L,S|S$$

b. Construct the first and follow set for the non-terminals in the following grammar:

$$S \rightarrow Abb|C$$
$$A \rightarrow aA|b$$
$$C \rightarrow ab|cde$$

(6, 4)

IV. Construct LALR parsing table for the following grammar:

$$E \rightarrow E + T|T$$
$$T \rightarrow TF|F$$
$$F \rightarrow F * |a|b$$

(10)

Section-B

V.
a. What are basic blocks? What are the steps to partition a sequence of three-address statements into list of basic blocks?
b. Describe structure preserving transformations that can be applied on the basic blocks to optimize code.

(5,5)