1128

**B.E. (Information Technology)**
Seventh Semester
ITE-746: Complier 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 Unit.*

x-x-x

I.   Attempt the following:-

   a) What is Translator? Differentiate between Compiler and Interpreter.

   b) Differentiate between DFA and NFA.

   c) Write the need of Semantic analysis

   d) Compare local optimization with global optimization

   e) What is an LL(1) grammar? When the grammar is said to be LL(1) grammar?
   (5x2)

## UNIT – I

II.  a) What is ambiguity? How an ambiguous Grammar can be converted to unambiguous
        Grammar.

     b) Explain how LEX tool helps in performing the operation of Lexical Analysis. (5,5)

III. a) Consider the following Grammar. Find LEADING and TRAILING for the
        following Grammar.
        $S \rightarrow E + T|T \quad T \rightarrow T \times F|F \quad F \rightarrow (F)|a|b$

     b) Analyze the working of Compiler with the help of following statement.
        $Z=A+B+C \times 10$                                               (5,5)

IV.  a) Design NFA for the Regular Expression
        $(a+b)^* \, a \, (a+b)$

     b)    Discuss Recursive Descent Parsing.                              (5,5)

## UNIT – II

V.   a)   Write Three Address code. Quadruple and Triples for the following expression:
          $(a + b) \times (c - d \times e)$
     b) Construct the DAG for the following expression $(a \times b) + (c-d) \times (a \times b) + b$. (5,5)

P.T.O.

(2)

VI.   a)  What is Code Optimization? Explain the difference between Local and Loop Optimization.

b)  What is Symbol Table? Explain the use of Hash Table in Symbol Table. (5,5)

VII.  a) What is Peephole optimization? Explain its characteristics.

b) Write the different Storage Allocation Strategies.            (5,5)

x-x-x