

**III B.Tech II Semester Regular/Supplementary Examinations, May 2010
COMPILER DESIGN**

Computer Science And Engineering

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Explain the terms.
 - (a) Activation record. | a
 - (b) Activation trees.
 - (c) Block structure.
 - (d) Non block structured languages. [16]
2. (a) What is the string generated by the grammar $A \rightarrow (A)A$
(b) Explain the basic method of LL(1) parsing and hence explain how very simple grammar generates strings of balanced parentheses. [8+8]
3. Give the algorithm to generate the canonical collection of LR(0) items [16]
4. (a) Translate the following code segment into quadruples.
While $A < C$ and $B < D$
if $A = 1$ then $C := C + 1$
else while $A \leq D$ do $A := A + 2$

(b) Explain the different statements allowed in TAC with examples. [8+8]
5. Explain DAG and its use. Write the procedure to construct the DAG for a statement. [16]
6. Explain about global data flow analysis. List data flow equations for reaching definition
7. (a) Write the three-address code for the following code.
fact(x)
{ int f=1;
for (i=2, i >=x, i++)
{
f=f*i;
return f;
}}

Code No: 07A60502

R07

Set No. 1

- (b) Write an algorithm for identifying leaders and partition the code into basic blocks and apply it on the above derived three-address code. [8+8]
8. Explain with one example how LEX program perform lexical analysis for the following patterns in 'C': identifier, comments, numerical constants, arithmetic operators. [16]
