

**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**

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1. Define the following terms.
  - (a) Reaching definition.
  - (b) Live variables.
  - (c) Flow graphs.
  - (d) Global optimization. [16]
  
2. (a) Construct predictive parse table for the following grammar.  
 $E \rightarrow E + T | T$   
 $T \rightarrow T * F | F$   
 $F \rightarrow F \_ | a | b$ 
  - (b) What are the limitations of recursive descent parser. [8+8]
  
3. (a) What are the actions of shift-reduce parsers?
  - (b) Construct SLR parsing table for the following grammar. [6+10]  
 $S \rightarrow AS | b$   
 $A \rightarrow SA | a$
  
4. (a) Write a regular expressions and NFA for the following patterns. Use auxiliary definitions where convenient?
  - i. The set of words having a, e, i, o, u appearing in that order, although not having necessarily consecutively.
  - ii. Comments in C.
  - (b) Differentiate Interpreter & Compiler? [8+8]
  
5. Explain machine dependent code optimization with example. [16]
  
6. Write the procedure for identifying the basic blocks with example. For the same example draw domination tree. [16]
  
7. Explain activation tree and draw activation tree for any sorting method. [16]
  
8. (a) Write the quadruples, triples and indirect triples for the expression
  - i.  $( a + b ) * ( c + d ) *( a + b + c )$
  - ii.  $a * ( b + c )$

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**R07**

**Set No. 2**

- (b) Write a top-down translation scheme to produce quadruples for Boolean Expression. [8+8]

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