Code No: 56031 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech III Year II Semester Examinations, May - 2015
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1.a) Explain in detail about the role of lexical analyzer with the possible error recovery actions.
b) Show how lexical analyzer is constructed using LEX? Write a LEX program for token recognizer. [8+7]

2. Check whether the following grammar is a LL(1) grammar:
S - > iEtS | iEtSeS | a
E- > b
Also define the FIRST and FOLLOW procedures. [15]

3. Find the SLR parsing table for the given grammar and parse the sentence for (a+b)*c.
E->E+E | E*E | (E) | id. [15]

4.a) What is a three address code? Mention its types. How would you implement the three address statements? Explain with examples?
b) Write the syntax-directed definition for if-else statement. [8+7]

5.a) With a neat diagram explain the format of symbol table.
b) Discuss in detail about the tree structures representation of scope information. [8+7]

6.a) Generate DAG representation of the following code:

```
i=1; s=0;
while(i<=10)
s=s+a[i][i];
i=i+1
```

b) List out the applications of DAG representation. [10+5]

7.a) Give an example to explain in detail about live variable analysis.
b) Explain in detail about principle sources of optimization. [8+7]

8.a) Explain the various issues in the design of code generation.
b) Explain code generation phase with simple code generation algorithm. [5+10]

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