Code No: 156AH **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, August/September - 2021
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) State the reasons for separating Lexical analysis and Syntax analysis.
b) Discuss how Finite Automata is used to recognize tokens and perform lexical analysis with example. [7+8]

2.a) How to specify the Tokens? Differentiate Token, Lexeme and Pattern with suitable examples.
b) Explain various Error Recovery strategies in Lexical analysis. [7+8]

3.a) What do you mean by Ambiguous Grammar? Check whether the following grammar is Ambiguous or not
S→aAB,
A→bC/cd,
C→cd,
B→c/d
b) Write a note on Yacc. [8+7]

4. Construct CLR parsing table for the following Grammar
S →L=R
S→R
L→*R
L→id
R→L (Write all necessary procedures). [15]

5.a) Give Syntax Directed Translation scheme for Simple Desk Circulator.
b) Convert the following arithmetic expression into Syntax Tree and Three Address Code b*3(a+b). [7+8]

6.a) Differentiate Synthesized and Inherited Attributes with example.
b) Generate Intermediate code for the following code segment along with the Syntax Directed Translation Scheme.
if (a > b)
x = a + b;
else
x = a - b;
Where 'a' and 'x' are of real and 'b' of int type data. [7+8]

7.a) What is Flow-Graph? Explain how the given program can be converted into Flow-Graph?

b) Construct DAG for the following basic block:

d:= b+c
e:= a+b
b:=b*c
a:=e-d [8+7]

8.a) "*Copy propagation Leads to Dead code*" - Justify the statement.

b) Explain Global Data Flow analysis with necessary equations. [7+8]

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