

**R18**

Code No: 156AH

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 Calculator.

- 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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