

Code No: 56031

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech III Year II Semester Examinations, May - 2019****COMPILER DESIGN****(Computer Science and Engineering)****Time: 3 hours****Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1. Explain the various phases of a compiler in detail. Also write down the output for the following expression after each phase $a := b * c - d$. [15]
2. Check whether the following grammar is a LL(1) grammar:
 $S \rightarrow iEtS \mid iEtSeS \mid a$
 $E \rightarrow b$
Also define the FIRST and FOLLOW procedures. [15]
3. Construct an LALR parsing table for the following grammar:
 $S \rightarrow (L)/a$
 $L \rightarrow L, S/S$ [15]
4. Generate intermediate code for the following code segment along with the required syntax directed translation scheme:
if($a > b$)
 $x = a + b$
else
 $x = a - b$
Where a and y are of real and b is int type data. [15]
5. Explain in detail about block structured and non-block structured storage allocation. [15]
- 6.a) Construct the dag for the following basic block.
 $d := b * c$
 $e := a + b$
 $b := b * c$
 $a := e - d$
b) Write short notes on next-use information with suitable example. [7+8]
- 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. Write the procedure for register allocation and assignment with graph coloring. [15]

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