R09

Code No: C5809

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS APRIL/MAY-2012
ADVANCED COMPILER DESIGN
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks

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1.a) With a neat diagram explain the various phases of compiler design. List out the various compiler writing tools you know.
b) For the following source language statement. show the output of each of the stages of the compiler for the statement P = I+R*40. Variables P, I and R of type float.

2. Define Ambiguity? Explain how ambiguity can be removed in the following grammar:
E-> + E/ E-E /E*E / E Divide E/ E^E|(E)/-E/id.

3.a) Write semantic actions to the set of procedure.
S->E$
E->E+E
E->E+E
E->(E)
E->I
I->I digit
I->digit.
b) Distinguish between parse tree and syntax tree.

4.a) Define FIRST and FOLLOW.
b) Compute FIRST and FOLLOW to the grammar mentioned in Question no 3.

5.a) What are the various data structures used for symbol table construction and explain any one in detail.
b) Let A be 10 by 20 array, with low1 = low2 = 1. Let w = 4. Draw annotated parse tree for the assignment statement X:= A[y,z].Give the sequence of three address statement generated.

6.a) Why do we need code optimization? Explain the principal sources of optimization.
b) Discuss code generation algorithm. Explain various storage allocation strategies.

7. Discuss the following with example
a) Quadruples
b) Triples
c) Indirect Triples.

8. Write short note on
a) Context free grammars.
b) Storage allocation.
c) Syntax directed translation.
d) Loop optimization.

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