Code No: 125AP

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, May - 2018
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)   What are the two parts of a compilation? Explain briefly.   [2]
  b)   Define a context free grammar.   [3]
  c)   List the properties of LR parser.   [2]
  d)   Write short notes on YACC.   [3]
  e)   What are the various types of intermediate code representation?   [2]
  f)   Give the format of symbol table   [3]
  g)   List the terminologies used in basic blocks.   [2]
  h)   What is a flow graph?   [3]
  i)   Mention the properties that a code generator should possess.   [2]
  j)   What is a DAG? Mention its applications.   [3]

PART - B

(50 Marks)

2.   Explain in detail about the role of Lexical analyzer with the possible error Recovery
      actions.   [10]
                                         OR
3.   Construct Predictive parsing table for the following grammar:
      the necessary algorithm.
      S > (L)/ a
      L > L, S/S and check whether the (a, a) belong to that grammar or not.   [10]

4.   Give the LALR parsing table for the grammar.   [10]
      S -> L = R / R   L -> * R / id   R -> L
                                         OR
5.   Compare and contrast between SLR, LALR and LR parses.   [10]

6.   How would you generate the intermediate code for the flow of control statements?
      Explain with examples.   [10]
                                         OR
7.   Explain how the types and relative addresses of declared names are computed and how
      scope information is dealt with.   [10]

8.   Write about Data flow analysis of structural programs.   [10]

OR

9.   Explain the principle sources of optimization in detail.   [10]

10. Give an example to explain in detail about machine dependent code optimization. [10]

OR

11. Describe how DAG can be used in register allocation process? Give examples.   [10]

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