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Question Paper Code: 46802

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Sixth Semester

Information Technology

14UIT602 - COMPILER DESIGN

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A compiler can check

(a) Logical Error (b) Syntax Error
(c) Both Logical and Syntax Errors (d) Neither Logical nor Syntax error

2. A compiler program written in a high level language is called

(a) Object program (b) Source program
(c) Machine language program (d) None of these

3. A bottom up parser generates

(a) Right most derivation (b) Right most derivation in reverse
(c) Left most derivation (d) Left most derivation in reverse

4. When a computer is first turned on or resrarted, a special type of absolute loader is executed called

(a) Compile and GO loader (b) Boot loader
(c) Boot strap loader (d) Relating loader

5. An intermediate code form is

(a) Postfix notation (b) Syntax trees
(c) Three address code (d) All the above

6. Three address code involves

   (a) Exactly 3 address (b) At most 3 address

   (c) No unary operators (d) None of these

7. Input to code generator is

   (a) Source code (b) Intermediate code

   (c) Target code (d) All of these

8. DAG representation of a basic block allows

   (a) Automatic detection of local common sub expressions

   (b) Automatic detection of induction variables

   (c) Automatic detection of loop variant

   (d) None of these

9. Local and loop optimization in turn provide motivation for

   (a) Data flow analysis (b) Constant folding

   (c) Peep hole optimization (d) DFA and Constant folding

10. An optimizing compiler is

    (a) Optimized to occupy less (b) Optimized to take time for execution

    (c) Optimizes the code (d) All the above

PART - B (5 x 2 = 10 Marks)

11. Define the tasks in lexical analyzer.

12. Describe top down parser.

13. Write the three address code and postfix notation for the expression a * - (b + c).

14. Compare basic block and flow graph.

15. Identify the techniques used for loop optimization.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the phases of compiler. and how the following statement will be translated in every phase: (i) a : = b + c * 50 (ii) a : = b * c - d. (16)

Or

(b) Explain the error recovery strategies in lexical analysis. (16)

17. (a) Create a predictive parsing table for a given grammar: (16)

$E \rightarrow E + T/T$

$T \rightarrow T \ * F/F$

$F \rightarrow (E)/id$

Or

(b) Discuss the different types of storage allocation. (16)

18. (a) List the three address codes? Mention the types. How would you implement the three address statement with example. (16)

Or

(b) List out the methods available to represent the value of Boolean expression. (16)

19. (a) Discuss the issues in the design of a code generator. (16)

Or

(b) Analysis the DAG representation of the basic block with example. (16)

20. (a) Write an algorithm to construct the natural loop of a back edge. (16)

Or

(b) Explain with an example about the optimization of basic blocks. (16)

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