Register Number:.....

M.E DEGREE EXAMINATIONS : OCTOBER / NOVEMBER – 2008

Second Semester

COMPUTER SCIENCE AND ENGINEERING

P07CS203: COMPILER DESIGN

TIME : Three Hours **Maximum Marks : 100**

Answer ALL Questions:-

PART – A (20 X 2 = 40 Marks)

1. The output of preprocessors may be given as the input to
   a) Interpreter b) Scanner c) Parser d) Compiler

2. Cousins of compiler means the counter in which the compiler typically operators which may be
   a) Scanner b) Parser c) Linker d) Code generator

3. Example for a programming language that uses interpreters is
   a) C b) LISP c) C++ d) COBOL

4. _ _ _ _ _ _ _ _is an example for compiler – compiler
   a) Date flow engine b) Passer c) Interpreter d) Translator

5. In lex program, _ _ _ _ _ _ _ _is declared to represent a constant
   a) Manifest constant b) Constant c) Token d) Variable

6. _ _ _ _ _ _ _ _ _ is a tool for constructions of analyers
   a) YACC b) LEX c) LISP d) ANSYS

7. One of the regular expression for constant is
   a) Digit b) digit- c) (Digit)+ (.) (Digit)+ d) Digit - E (Digit)+

8. _ _ _ _ _ _ _ _ _ is a special character that cannot be part of the source program
   a) Identifier b) Sentinel c) Token d) Lexeme

9. The syntax of programming language constructs can be described by _ _ _ _ _ _ _ _
   a) BCNF b) BNF c) BCF d) BNCF

10. In which of the error-recovery strategies, the passer performs local correction on the remaining input on discovering an error
    a) Error productions b) Global corrections
    c) Phase level recovery d) panic-mode recovery

11. A passer that uses a set of recursive procedures to recognize its input with no back tracking is called a
    a) Table-driven predictive passer b) Bottom-up passer
    c) Recursive-descent passer d) Predictive passer

12. A grammar with the property that no production right side is (-) or has two adjacent non terminals is called an
    a) SLR grammar b) CLR grammar c) LL(1) grammar d) Operator-precedence grammar

13. _ _ _ _ _ _ _ _ _ _ is an abstract form of intermediate code that can be implemented as a record with address field
    a) Object code b) Machine code c) 3-address code d) Assembly code.

14. A _ _ _ _ _ _ _ _ _ _ for an expression id entifies the common sub expression in the expression

a) Parse free b) Abstract syntax tree c) Dependency graph d) Directed acyclic graph

15. _ _ _ _ _ _ _ _ _ _ _ passes are used to implement the syntax directed definitions of Boolean expressions and flow of control statements

a) One b) Two c) Multi d) Three

16. Back patching can be used to generate code for Boolean expression and flow of control statements in _ _ _ _ _ _ _ _ pass.

a) One b) Two c) Multi d) Three

17. In _ _ _ _ _ _ _ _ _ _technique the computation of constant is done at compile terms instead of execution time

a) Constant propagation b) Folding
c) Variable propagation d) Loop invariant computations

18. _ _ _ _ _ _ _ _ _ _ Language uses dynamic scope rule

a) PASCAL b) C c) ADA d) LISP

19. _ _ _ _ _ _ _ _ _ _ is also known as value result

a) Copy - restore b) Call- by - name c) Call - by - reference d) Call - by - value

20. _ _ _ _ _ _ _ _ _ is an important factor in generating an efficient target code

a) Memory b) Evaluation order c) Register allocation d) Instruction selection.

PART - B (5 X 12 = 60 Marks)

21. (a) Explain the various phases of compiler in detail with neat sketch - Write down the O/P for the expression after each phase a:= b x c – d (12)

(OR)

(b) (i) Define pass of compiler .which are the factors that decide number of passes for a compiler. (4)

(ii) With the help of block schematic explain how " Compilers – Compilers " can reduce the effort in implementing new compiler. (8)

22. (a) (i) Write short notes on token specification (6)

(ii) Explain input buffering in detail (6)

(OR)

(b) Convert the NFA $(a / b)^*$ into DFA show the sequence of moves made by each in processing the input string ab abb a (12)

23. (a) Consider the following grammar (12)

S→L=R / R
L→ * R / id
R→L
check whether the grammar is slr(1) or not.

(OR)

(b) Construct a canonical parsing table for the grammar (12)

S→CC and C→ cC/d

24. (a) (i) Explain in detail the various implementations of three-address statements (6)

(ii) Generate the three address code for the expression X: = A[I, j] for an

Array 10 x 20. Assume [low_1 = 1 and low_2 = 1] (6)

(OR)

(b) (i) Describe the method of generating syntax directed definite for control statements (6)

(ii) Generate a three-address code for the following segment of code (6)

```
C = 0
do
        {if (a < b ) then
                x + +;
        else
                x - - ;
                C + + ;
        } while (C < 5)
```

25. (a) Discuss the various issues related to the design of code generator (12)

(OR)

(b) Discuss in detail the runtime storage management. (12)

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