18228(M)

B. Tech 6th Semester Examination

Compiler Design (CBS)

CS-603

Time : 3 Hours   Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt one question from each unit. Question no. 9 is compulsory.

UNIT - I

1. Draw and explain the various phases of compiler.   (10)

2. Discuss the action taken by every phase of the compiler on the following string:

    M:=P*Q+40   (10)

UNIT - II

3. Construct SLR Parsing table for the following grammar:

    S→L=R

    S→R

    L→*R

    L→id

    R→L   (10)

4. What is syntax directed translation? Explain the types of attributes used in syntax directed translation.   (10)

UNIT - III

5. What do you mean by Directed Acyclic Graph? Explain in detail with example.   (10)

6. Describe global data-flow analysis in detail.   (10)

UNIT - IV

7. What do you understand by pee-hole optimization?   (10)

8. Write a short note on issue in design of code generator. (10)

UNIT - V

9. Multiple choice questions:

    (i)   The most powerful parser is

           (a) Canonical LR Parser

           (b) SLR Parser

           (c) LALR Parser

           (d) LL (1) Parser.

    (ii)   Symbol table used for

           (a) Generating code

           (b) optimizing the code

           (c) Checking the type compatibility

           (d) for handling the recursive procedures

    (iii) LR (1) parser are less powerful than SLR (1) parser.

           (a) True

           (b) False

                                                        [P.T.O.]

(iv) Pattern is a rule describing the set of lexemes that can represent a particular token in source language.

    (a) True

    (b) False

(v) A lexeme is a sequence of characters in a source program that is matched by the pattern for a token.

    (a) True

    (b) False

(vi) What is Compiler?

    (a) Compiler is an Editor.

    (b) Compiler is a program that converts high level source program into the machine code.

    (c) Compiler is a program that converts low level source program into machine code.

    (d) Compiler is a general purpose application program.

(vii) Synthesized attribute of any node depends on:

    (a) Parent node

    (b) Left Sibling

    (c) Right sibling

    (d) None of These

(viii) A grammar which can be successfully parse by a predictive parser is said to be

    (a) LL (1) grammar.

    (b) Operator Grammar.

    (c) Unambiguous grammar.

    (d) None of These

(ix) A grammar is said to be ambiguous when:

    (a) Grammar can have more than one parse tree.

    (b) Grammar has only one parse tree.

    (c) Grammar has no parse tree

    (d) None of these.

(x) A Grammar is said to be operator precedence if....

    (a) there is no production on the right side ε.

    (b) there should not be any production rule processing two adjacent non-terminal at the right hand side.

    (c) The language produced by this grammar rule contains the operators.

    (d) all of the above.   (2×10=20)