Roll No. .....

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MCA/DX

SYSTEM PROGRAMMING & COMPILER CONSTRUCTION

Paper : MCA-504

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory. In addition to compulsory question, attempt *four* more questions by selecting *one* question from each unit.

1. Write short notes on the following :

(a) System Software and Application Software.

(b) Loader and Linkage Editor.

(c) Lexical and Syntax analysis phase.

(d) YACC and CFG.

(e) Top-Down Parsing technique.

(f) Symbol table and Parsing table.

(g) Intermediate language.

(h) Boolean expression. (3×8=24)

UNIT–I

2. (a) How can a macro processor be combined with an assembler? Explain. (6)

(b) Define Loader. What are the important functions performed by it? Explain the Absolute Loader. (8)

3. (a) Discuss the design of a one-pass assembler. Give an account of differences between One pass and Two pass assembly schemes. (8)

(b) What is Program Relocatibility? Explain linking for program overlays. (6)

UNIT–II

4. (a) Explain the functioning of the compiler during Lexical and Syntax analysis phases. (10)

   (b) What are the problems with single pass assembler? Explain. (4)

5. (a) What do you understand by Regular Grammar, Regular Expression and Deterministic Finite Automata(DFA)? (7)

   (b) Describe Context Free Grammar. How can a Parse Tree be drawn? (7)

UNIT–III

6. (a) What do you mean by Parsing? Distinguish between Shift Reduce parsing and Operator Precedence parsing techniques. (10)

   (b) Describe LR parser with an example. (4)

7. Write notes on the following :
   (a) Constructing SLR Parsing tables.
   (b) Automatic Parser generator.
   (c) Bottom Up Parsing technique. (5,5,4)

UNIT–IV

8. (a) What is Local Code Optimization? Why its need arises? (7)

   (b) What are Intermediate Languages? How can one generate intermediate code for declarative statement? (7)

9. (a) Give an examples of potential cases of Code Optimization. (7)

   (b) List the issues in the design of a Code generator. (7)