[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2125)

15207

B. Tech 6th Semester Examination

Compiler Design (OS)

CS-6003

Time : 3 Hours **Max. Marks : 100**

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 five questions in all, selecting one question from each of sections A, B, C and D. Section E is compulsory.

SECTION - A

1. Explain the various phases of a compiler design by taking a suitable example for each phase. (20)

2. (a) Construct the DFA for the following expression d(a/b)*ac. (10)

   (b) Explain the tool used for writing lexical analyzer. (10)

SECTION - B

3. (a) Construct a predictive parsing table for the following grammar.

   $E \rightarrow TE'$, $E' \rightarrow +TE'/E$, $T \rightarrow FT'$, $T' \rightarrow *FT'/E$, $F \rightarrow (E)/id$ (10)

   (b) Explain left recursion and left factoring with example. (10)

4. a) Differentiate between top down and bottom up parsing. (10)

   (b) Compare SLR, LR and LALR parsers. (10)

[P.T.O.]

SECTION - C

5. (a) Write the rules for generating the intermediate codes for flow of control statements. (10)

   (b) Explain the data structures used for symbol table. (10)

6. (a) Explain the storage allocation strategies used in run time environment. (10)

   (b) Write quadruples, triples and indirect triples for the expression (a+b) *(c+d)-(a+b+c). (10)

SECTION - D

7. (a) Explain the various code optimization techniques. (10)

   (b) How does DAG helps in Code Optimization? Explain with suitable example. (10)

8. (a) Write notes on following:
   (i) Data Flow Analysis
   (ii) Peephole optimization (10)

   (b) Explain register allocation and assignment in code generation. (10)

SECTION - E

9. Give short answers of the following.
   (a) What is regular expression? Give example
   (b) Differentiate between NFA and DFA.
   (c) What is a parse tree?
   (d) Define symbol table.
   (e) Write applications of DAG.
   (f) What is bootstrapping?
   (g) Define token, pattern and lexeme.
   (h) Define Yacc.
   (i) What is LR(0) item?
   (j) Write the rules for identifying Basic Block. (10×2=20)