

[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)

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2

15207

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)