Roll No. …… Total Pages:
10463

MCA/D-12
SYSTEM PROGRAMMING AND COMPLIER CONSTRUCTION
Paper-MCA-504

Time allowed: 3 hours Maximum marks: 80

Note: Attempt five questions in all. Question no. 1 is compulsory.
Attempt four more questions selecting one question from each unit.

Compulsory Question

1. (a) "Self relocating programs are less efficient than relocatable programs" Comment.
(b) Explain the ambiguity in BNF grammar.
(c) Construct a regular grammar to generate words over {a, b} that contain the string 'abab'.
(d) What is the difference between context sensitive and context free grammar?
(e) Discuss the "Dead code enimination" code optimizing transformations.
(f) Discuss the application of data flow analysis in code optimization.
(g) What is shift reduce parsing?
(h) Write short note on YACC. 8 x 3 = 24

Unit-I

2. What do you understand by Macro? What is the difference between a macro and subroutine? Explain the lexical semantic expansion of macro call. 14
3. What is an assembler? What are the important differences between single pass and two-pass Assembly scheme? Discuss the design of a two-pass assembler. 14

Unit-II

4. What do you understand by Regular expression? Explain the procedure of converting a regular Expression into corresponding regular grammar. Use suitable example. 14
5. Write a grammar to identify a string consisting of characters a-z and 0-9. The first character Of string is to be a letter only. Draw an FSA also. 14

Unit-III

6. What is parsing? Distinguish between Top-Down and Bottom-Up parsing and explain the LR parsing using suitable example. 14
7. What is difference between scanning and parsing? Perform the operator precedence parsing For the following string:
I-<id> + <id> * <id>-I
Using grammar
S::= I-E-I
E::= E+T/T
T::= T*V/V
V::= <id>/(E). 14

Unit-IV

8. What do you understand by Code optimization? Differentiate between Local code Optimization and Global code optimization. Use suitable examples. 14

9. Write a detailed note on the important issues in the design of code generator. 14