

Roll No.

Total Pages : 2

MCA/D-12

10463

SYSTEM PROGRAMMING AND COMPILER

CONSTRUCTION

Paper : MCA-504

Semester-V

Time : Three 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 elimination" 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. 8x3= 24

UNIT-I

2. What do you understand by Macro ? What is the difference between a macro and subroutine ? Explain the lexical and semantic expansion of macro call. 14

10463/1300/KD/584

[P.T.O.]

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 the 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 the 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 the difference between scanning and parsing ? Perform the operator precedence parsing for the following string :
|- <id> + <id> * <id> -|
Using grammar
S ::= |E|
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

10463/1300/KD/584

2