

20P338

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Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS-PG)

(Regular/Supplementary/Improvement)

CC19P CSS3 C13 - PRINCIPLES OF COMPILERS

(Computer Science)

(2019 Admission onwards)

Time: Three Hours

Maximum: 30 Weightage

PART A

Answer any *four* questions. Each question carries 2 weightage.

1. Compare NFA and DFA with example
2. What is a symbol table? Write a note on Handle Pruning?
3. Explain in detail the design issues of code generator.
4. Compare static and dynamic allocation.
5. Explain basic blocks and flow graphs.
6. Write a note on simple code generator
7. Discuss operator precedence parsing.

(4 × 2 = 8 Weightage)

PART B

Answer any *four* questions. Each question carries 3 weightage

8. Explain activation trees and records with examples.
9. Discuss in detail about
 - (a) Storage allocation strategies
 - (b) Parameter passing methods.
10. Explain type checking with necessary diagram
11. Show the annotated parse tree and code generator process for the following arithmetic expression.
 - (a) $a + (b-c)*d$
 - (b) $-a(a+b)*(c+d)+(a*b+c)$
12. Explain the implementation of Three Address statements.
13. Explain various errors encountered in different phases of compiler.
14. Show that the following grammar.

$S \rightarrow Aa|bAc|dc|bda$

$A \rightarrow d$

$B \rightarrow d$

Is LALR(1) but not SLR(1)

(4 × 3 = 12 Weightage)

PART C

Answer any *two* questions. Each question carries 5 weightage

15. Explain the algorithm to minimize the number of states of a DFA. Illustrate.
16. Explain region based analysis on optimization.
17. Discuss the various phases of compiler and trace it with the program segment
(position:=intial+rate*60)
18. Calculate the first and follow functions for the given grammar.

$S \rightarrow aBDh$

$B \rightarrow cC$

$C \rightarrow bC / \epsilon$

$D \rightarrow EF$

$E \rightarrow g / \epsilon$

$F \rightarrow f / \epsilon$

(2 × 5 = 10 Weightage)
