

18P345

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Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(CUCSS-PG)

CC17P CSS3 C02 – PRINCIPLES OF COMPILERS

Computer Science

(2017 Admission onwards)

Time: Three Hours

Maximum: 36 Weightage

PART A

Answer *all* questions. Each question carries 1 weightage.

1. Define LR(0) item.
2. What is input buffering?
3. What is static simple assignment form?
4. Differentiate between static and dynamic allocation.
5. Define regular expression. Construct a regular expression for the language.
 $L = \{w \in \{a,b\}^* \mid w \text{ ends in } abb\}$.
6. What are the issues in the design of code generator?
7. Explain memory hierarchy.
8. What do you mean by handle pruning?
9. Draw the NFA for the regular expression aab^*a .
10. What do you mean by boolean expression?
11. Define peephole optimization.
12. Find the FIRST and FOLLOW of the given grammar

$S \rightarrow AaAb / BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

(12 x 1 = 12 Weightage)

PART B

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

13. Explain quadruples, triples and indirect triples.
14. Discuss the various applications of compiler technology.
15. Explain region-based analysis.
16. Briefly explain LR parsing.
17. How do you manage a heap?
18. Give an overview of the design of lexical analyzer generator.

19. Give a detailed account of flow graphs.
20. Test whether the grammar is LL(1) or not and construct a predictive parsing table for it.
- $$S \rightarrow iCtSS'/a$$
- $$S' \rightarrow eS/\varepsilon$$
- $$C \rightarrow b$$
21. Compare DAG and syntax tree using the expression $a=b*-c + b *-c$.

(6 x 2 = 12 Weightage)

PART C

Answer any *three* questions. Each question carries 4 weightage.

22. Explain the phases of compiler with example.
23. Describe the principal sources of code optimization.
24. Explain the specification of simple type checker for statements, expressions and functions.
25. Explain the following:
- a) Operator Precedence Parsing b) Recursive Descent Parsing
26. Write a note on stack allocation of space.
27. Explain the following:
- a) Simple target machine model b) Compiler construction tools.

(3 x 4 = 12 Weightage)
