

CS328, Fall 2000, Test 2

Time 50 min. Use extra paper as needed, but make sure to identify each answer.

YOU MUST RETURN THIS PAGE. NAME _____

- 1 You have a vending machine that has items of 3 items: Cookie20, Cookie30, and Cookie35. The prices are \$0.20, \$0.30, and \$0.35. The machine accepts Nickels, Quarters, and Dimes. It is a strange machine, the user puts money until either exactly \$0.20 is inserted (you get Cookie20), exactly \$0.30 is inserted (you get Cookie30), or more money is inserted, and you get Cookie35 and no change.
You need to design a FA to operate the machine.
 - a) what tokens you will have
 - b) what is the alphabet
 - c) design a deterministic FA
- 2 Given:
S \rightarrow SabC | abC | aC
C \rightarrow ccC | c | empty
Make all necessary changes and show all necessary sets to prove the above can be written as LL(1). If not possible, argue why.
- 3 Design unambiguous grammar to parse expressions involving +, -, *, / and unary -. Also (). () override any operator. Then, unary minus is strongest, followed by -/+ (same precedence, right associative) and *, left associative, then finally /, left associative.
- 4 Given the production:
S \rightarrow aSAb | Ab
A \rightarrow bbb
implement a complete pseudocode for a recursive descent parser. Assume scanner() returns the next token.