Southeast University Examination Paper (MidTerm Self-test)

Course Name Principles of Compiling Examination Term 16-17-2 Score

Related Major Examination Form Close test Test Duration 120 Mins

There are 5 problems in this paper. You can write the answers in English or Chinese.

1. Please construct **context-free grammars without ε-productions** for the following language.(20%)

   L={$a^m \omega b^m$| m≧0 and ω∈(c,d,e,f)* and the numbers of c's and d's and e's occurred in ω are **even**}

2. Please construct a **DFA with minimum states** for the following regular expression. (20%)

   (((a|b)*(ab))*(a|b))*(a|b)

3. Please **eliminate the left recursions (if there are)** and **extract maximum common left factors (if there are)** from the following context free grammar, and then decide **the resulted grammar** is whether a LL(1) grammar by **constructing the related LL(1) parsing table.**(20%)

   S→if E then S| if E then S else S|while E do S|a

Surname_____

Student No._____

Please obey the rules of examination. If you violate the rules, your answer sheets will be invalid

E→ E and E|E or E|not E|(E)|b

4. Please **construct a LR(1) parsing table for the following ambiguous grammar with your own defined additional conditions (You determine the required additional conditions by yourself)**.(20%)

   S→ if E then S|if E then S else S| a

   E→E and E|not E|(E)|b

5. **Prove** that if G is a LL(1) grammar, then it is a LR(1) grammar.(20%)