



Department of Computer Science and Engineering
Bangladesh University of Engineering and Technology
CSE 309 (Compiler)

Class Test: 1, Full Marks: 20, Time: 25 minutes
Wednesday 31st March, 2021

There are 6 questions in 1 pages. Please make sure that you got all of them.

1. Why is it sometimes necessary to preserve a copy of the code after lexical analysis? Explain. (2)
2. In a certain compiler, the code optimizer changed the result produced by the program. Comment with justifications on the acceptability of this optimizer. (2)
3. Mr. PseudoGenius in your class suggested that lexical analyzer be completely eliminated and the corresponding tasks be handed over to syntax analyzer. This generated a number of opinions in the class: (3)

Opinion (i) Elimination of lexical analyzer is absolutely impossible.

Opinion (ii) Lexical analyzer can be eliminated but substantial additional difficulty will be encountered.

Opinion (iii) Lexical analyzer can be eliminated without any additional difficulty.

Write down your own opinion with necessary justifications (mandatory).

4. Let's consider a language like C++ where both + and ++ constitute valid tokens. In some code of this language there are three consecutive + characters followed by a newline character. During lexical analysis with a buffer pair, both the pointers are on the leftmost + character. Describe clearly, with necessary figures, the activities that will happen starting from the present moment to the moment when the newline character will be found. (6)
5. Construct a procedure-based predictive parser for the grammar, (5)

$$S \rightarrow (L) | a$$

$$L \rightarrow sL, S | \epsilon$$

.

6. Eliminate left recursion from the grammar: (2)

$$L \rightarrow L, cd | ab$$