Roll Number: _____

BE COE Mid Term Test   UCS802: Compiler Construction
March 7, 2020
Time: 02 Hours; MM: 25   Name of Faculty: Dr. Ajay Kumar

Instruction to Students: Attempt all questions. **Assume any missing data.**

1. Given the regular expression $r = a*abb*$

   a) Convert the given regular expression into NFA using Thompson's construction.

   b) Convert the obtained NFA into DFA.

   c) Minimized the obtained DFA.   [6]

2. Eliminate left recursion of the following grammar   [3]

$$lexp \rightarrow atom \mid list$$
$$atom \rightarrow number \mid identifier$$
$$list \rightarrow (lexp - seq)$$
$$lexp - seq \rightarrow lexp - seq \; lexp \mid lexp$$

3. Given Grammar $A \rightarrow (A)A \mid \epsilon$ [4]

   Find First and Follow sets for terminal A.

4. Explain various steps of Compiler Construction by considering an example of your choice. Diagrammatically represent inputs and outputs of each phase for the same example.   [6]

5. Consider the following grammar: [6]

$$S \rightarrow aSb \mid A$$
$$A \rightarrow cA \mid \varepsilon$$

   a) Construct LL(1) Parsing Table.

   b) Parse the string w=aacbb using the LL(1) Table.