CS301 Theory Of Automata – Spring 2017

MID-1 Examination

Max. Marks:40   Instructors: ShaharBano, Sehrish Hina   Time Allowed: 1 hour

Instructions Part   **Read and follow**
  a) Solve Objective Part on Question Paper. No grading for overwriting, erasing or any explanations.
  b) Return the signed question paper with your answer sheet.
  c) Understanding questions is part of examination. Clarifications from instructor are not allowed.
  d) Be precise, to the point, negative marking for unusual lengthy reasoning.

Student's Signature: _____   Invigilator's Signature: _____

Section A [2*5Marks]

1. Let $S_1 = \{0, 11\}$ and $S_2 = \{1, 10, 110\}$, subsets of S^*, where S is any vocabulary. Find $S_1 S_2$ and $S_2 S_1$. From the definition of the concatenation of two sets of strings, define S_1^n recursive definition, for $n = 0, 1, 2, \ldots$
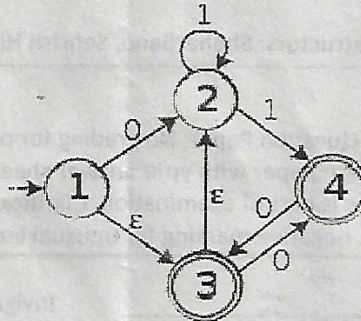
2. Proof that Every NFA has an equivalent DFA.
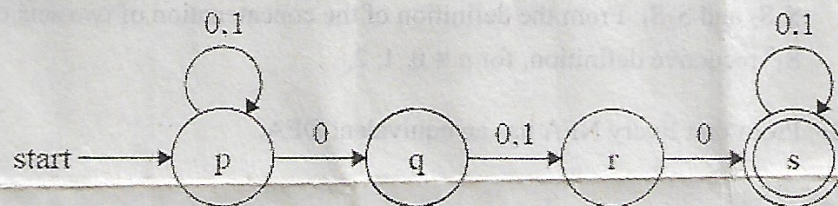
Section B [5*6Marks]

1. Construct DFA's for accepting all strings with atmost four 0's and atleast two 1's.

2. Make the transition table and find the language recognized by the deterministic finite-state automaton shown here.

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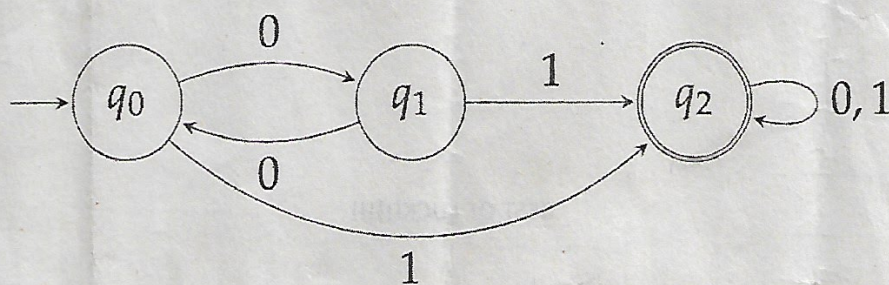
3. Eliminate the epsilon transition from the following epsilon-NFA to get either NFA or DFA.

4. Using extended transition function show that 101010 and 010101 are accepted by the epsilon-NFA in question 3.

5. Build the transition table of the following NFA Transition Diagram. Convert the NFA to a DFA. Show the transition tables clearly.

BEST OF LUCK!!!!!!

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