Homework Assignment #6

Note

This assignment is due 2:20PM Wednesday, November 27, 2019. Please write or type your answers on A4 (or similar size) paper. Late submission will be penalized by 20% for each working day overdue. You may discuss the problems with others, but copying answers is strictly forbidden.

Problems

1. (40 points) Define a Büchi automaton (by drawing its transition diagram) for each of the following temporal properties.

    (a) p holds initially (at position 0) and at every third position (3, 6, etc.).

    (b) Whenever p holds, q must hold eventually at a strictly later position.

2. (60 points) Apply the simple on-the-fly translation algorithm to construct a generalized Büchi automaton from the LTL formula $(p \wedge q)\,\mathcal{U}\,(p \vee q)$. Please try to illustrate how the algorithm works by showing a few partially constructed automata during the translation.