

# CS 373 Fall 2010

## Quiz 1 Solutions

### Lecture 1 - Mahesh

1. C. For  $(x, y) \in X$ ,  $x$  and  $y$  must be odd and neither can be less than 3.
2. B.  $K$  contains the strings that when concatenated after a 0 are strings in  $L$ .
3. A. There are no epsilon transitions in a DFA, so the first state must accept.
4. C. From lecture.
5. B. For some nonnegative  $n$ , there are  $2n$  zeros after the final one. We can rule out the other choices with 1 and 101, which are in  $L(M)$ .
6. C. A is too broad ( $M$  cannot accept 10000), and 101 is not consistent with B.

### Lecture 2 - Gul

1. A. For  $(x, y) \in X$ ,  $x$  and  $y$  must be even.
2. B.  $K$  contains the strings that when concatenated before a 1 are strings in  $L$ .
3. A. Lecture definition.
4. B. The initial may have an epsilon transition to an accepting state (contradicts A), but may be accepting itself (contradicts C). For B, have one new final state that all old final states epsilon transition into.
5. C. For some nonnegative  $n$ , there are  $2n + 1$  zeroes after the final one (if it exists). We can rule out the other choices with 0 and 0110, which are in  $L(M)$ .
6. B. A is too broad ( $M$  cannot accept 1000), and 11 is not consistent with C.