

Solution of Assignment # 5

12.1

(a) T

(b) F

(c) T

(d) T

(e) T

(f) F

(g) F

If the input sequence begins with $(x, \text{absent}, \dots)$, then the machine will be in state C. From that point on, even if x is present, it is not true that eventually $y=1$ will appear on the output.

Unlike the previous example, for this to be true, it requires that the state machine be in C in the "same" reaction in which it is in b, which cannot happen.

A counter-example is the reaction to the input sequence $(x, x, \neg x, x, x, \neg x, \dots)$, where the patterns repeat. In this case, x is absent infinitely often, so the left side is true. However, the right side is not true since state C is never reached.

13.1

(a) A is type refinement of B

(b) None of the above

(c) A is type refinement of B

(d) A is type refinement of B