Ladder Diagram Worksheet

Dr Frazer K. Noble

Activity One

(a) Write a ladder program, which computes the result of the following calculation:

$$y = 12 * (1.0 + 10.1).$$

(b) Write a ladder program, which computes the result of the following statement:

$$D = A \vee (B \wedge C).$$

(c) Write a ladder program, which sets B TRUE 1.5 seconds after A becomes TRUE.

Activity Two

(a) Describe what the following ladder diagram does:

Figure 1: A ladder diagram.

(b) Consider the following ladder program. If A is TRUE and B is FALSE, what will C's state be?

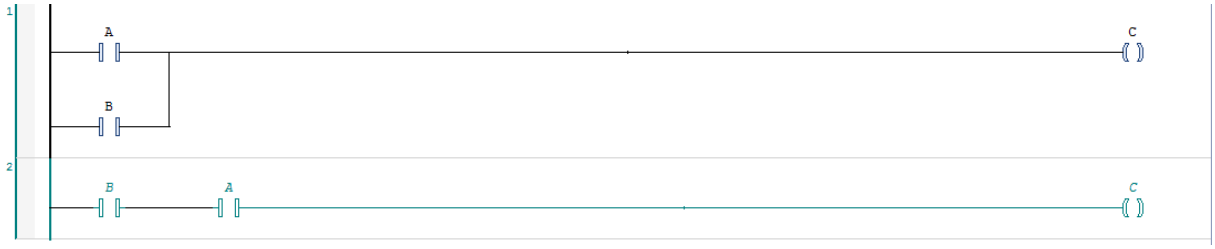

Figure 2: A ladder diagram.

Activity Three

Consider a clothes washing machine.

(a) Briefly describe the key stages of a washing cycle.

(b) Write a list of the washing machine's inputs and outputs.

(c) Write a list of IF-THEN statements, which relate the machine's inputs and outputs to the washing cycle's key stages.

(d) Write a ladder program, which implements the logic described by your IF-THEN statements.