

Homework 7

1. **(5 points)** Given the data path of the LC-3 as on p.142, give a complete description of the LDI instruction, as follows:

a) Give the RT (Register Transfer) specification of the instruction.

b) List the data applied to all relevant circuits in the data path (i.e. just those circuits relevant to the LDI instruction); and list, in the correct sequence, every control signal set by the FSM to implement this instruction.

Remember that not every tri-state device may be actually depicted on the schematic – but you must still specify the control signal if it is involved (*make up descriptive names for any control signals that are not shown on the schematic*).

For multi-bit control signals, you must specify the actual value where possible:

e.g. if the control signal is a 2-bit MUX selector, selecting for the input that is third from the right, then you must specify the value 10

11 10 01 00 |

If several control signals act at the same time, indicate that fact; otherwise list them in sequence.

2. 5.26 part c (1 point)

3. 5.29 (1 point)

4. 5.40 (1 point)

5. 5.41 (1 point)

6. 5.42 (1 point)
