

① What is the effect of the following sequence of RTL instructions?

Describe each one individually and state the overall effect of these operations. Note that the notation  $[x]$  means the contents of memory location  $x$ .

a.  $[5] \leftarrow 2$  The value 2 is loaded into memory location 5.

b.  $[6] \leftarrow 12$  The value 12 is loaded into location 6.

c.  $[7] \leftarrow [5] + [6]$  The sum of the contents of location 5 and 6 is loaded into location 7.

② What is stored-program machine?

A stored program or von Neumann machine is a general-purpose digital computer that stores programs and data in the same memory. Instructions are processed in a two-phase cycle called fetch and execute; that is, the instruction pointed at by the program counter (also called instruction pointer) is read from memory, fetched into computer, decoded and executed.

Since an instruction might be of the form LOAD X or STORE Y, or ADD Z, S, a second memory access may take place to read or write to the operand in memory.