Study Questions (Chapter 03 – Part 3)

1. What is the main function of the *program counter,* and how it differs from the *location counter*?

2. What is the main function of the *location counter,* and how it differs from the *program counter*?

3. What does the term *word aligned address* mean?

4. What does the term *half-word aligned address* mean?

5. Consider the following program.
   Edit lines `L1`, `L2`, `L3`, `L4`, `L5`, `L6`, and `L7`, by adding any combinations of data definition directives, i.e., `DCD`, `DCW`, `DCB`, `SPACE`, and `ALIGN`.

   Manually calculate the values of `r1`, `r2`, `r3`, `r4`, `r5`, `r6`, and `r7`.

   Assemble and run the program to verify your answer.

   ```
           AREA data_definitions, CODE, READONLY

           ENTRY
           ADR r1, L1
           ADR r2, L2
           ADR r3, L3
           ADR r4, L4
           ADR r5, L5
           ADR r6, L6
           ADR r7, L7
   loop B   loop

   L1      ……..
   L2      ……..
   L3      ……..
   L4      ……..
   L5      ……..
   L6      ……..
   L7      ……..

           END
   ```