ENS1161 Computer Fundamentals

Module 3 – Tutorial / Revision Questions

1. Name the 2 types of integer data. What is the range of values that can be represented for each type, if the integer is represented using:
    a. 8-bits?
    b. 16-bits?

2. A memory location contains the data *1010 0101*. What would this represent if the data was interpreted as:
    a. An unsigned integer?
    b. A signed integer?

3. (a) Describe the difference between 'big-endian' and 'little-endian' representation of multi-byte integers. Use diagrams to illustrate the difference.
   (b) What would happen if data stored in one of the above representations was read by a system using the other form?

4. The number 12503 is to be stored in memory. What is the minimum number of bytes required to store this data as:
    a. An integer?
    b. Text (ASCII)?

5. Briefly describe the functions of a *codec*.

6. Briefly explain what an addressing mode is.

7. Briefly describe the following data addressing modes. Use diagrams to illustrate where appropriate.
    a. Register
    b. Immediate
    c. Direct
    d. Indirect
    e. Indexed

8. How does a program addressing mode differ to a data addressing mode?

9. Briefly describe the following program addressing modes. Use diagrams to illustrate where appropriate.
    a. Absolute
    b. Relative