COMP2121 - Tutorial 3

1. What do these notations mean in AVR assembly programming? Where are they used?

```
a) .def      d) .dseg   g) .dw

b) .set      e) .org    h) .byte

c) .cseg     f) .db     i) .equ
```

2. Where are the functions **low()** and **high()** utilised? Load -200 into a two byte number.

3. What are the differences between **Macros** and **Functions**? In what circumstances are each of them appropriate, and when should each be avoided? Write a Macro called **Invert** to invert the value of a register (Note: The register should be sent as a parameter)

4. What are ***word addressable*** and ***byte addressable***? Explain them with examples using AVR memories.

5. Consider the following AVR assembly code segment and fill the initialization part?

.dseg
array: .byte 20
.cseg
data: .dw 0x1234
*// Initialize the X pointer with **array***
_____
*// Initialize the Z pointer with **data***
_____

6. What are **little endian** and **big endian** representations ? Which endian is used in AVR?

7. Identify the errors in the following instructions,

```
a) ldi r1,18

b) cp r16,‘L’

c) ldi zh, high(0x3476) => Word Addressable

d) ldi r40, 23

e) brge loop => for both unsigned numbers

f) brlo end => for both signed numbers
```