1. a. Convert the binary number 01001101 to denary. [1]

b. Convert the hexadecimal number 5A to denary. [1]

c. Convert the hexadecimal number F18C to binary. [1]

2. a. A positive integer can be represented as a binary value.   
  
Show that 14910 is equivalent to 100101012: [3]

b. Hexadecimal is a convenient way to express binary values in groups of four bits.   
  
Convert 100101012 to a hexadecimal value and show that this value to equivalent to 14910: [5]

2. MAC addresses are used to uniquely identify network enabled hardware devices. They are written in the format of six pairs of hexadecimal digits: 3A:D2:48:9E:61:AC.

* 1. Convert the first pair of digits 3A to binary. [2]
  2. How many bytes will this MAC address occupy in a computer’s memory? [1]
  3. Explain why a MAC address is expressed in hexadecimal rather than pure binary. [1]

[Total 15 Marks]