01.1 Convert the decimal number 87 into binary. Write your answer as an 8-bit binary value.

[1 mark]

01010111

01.2 Convert the hexadecimal number CE into binary. You should show your working.

[2 marks]

C = 12 = 1100   E = 14 = 1110

Answer: 11001110

02 Add together the following three binary numbers and give your answer in 8 bit binary

[2 marks]

```
   00010011
   10001001
 + 00010001
   10101101
```

03 Place the following quantities in order of size (1 – 3, where 1 is the largest and 3 is the smallest)

[2 marks]

Number	Order (1 – 3)
Decimal number `12`	3
Binary number `1110`	1 (=14)
Hexadecimal number D	2 (=13)

04.1 What is the minimum number of bits needed to be able to represent any character from a character set that contains only the 26 lower-case letters of the alphabet?

[1 mark]

5 bits – you need enough bits to represent 26 numbers (0-25). This can be done in 5 bits

04.2 What is the minimum number of bits needed to store any integer between 0 and 255?

[1 mark]

8 bits

04.3 How many bits does ASCII code use to represent a individual character?

[1 mark]

7 bits (this is knowledge)