01.1 Convert the decimal number 153 into binary. Write your answer as an 8-bit binary number.

[1 mark]

10011001

01.2 Convert the hexadecimal number 3F into decimal. You should show your working.

[2 marks]

3 x 16 = 48 [1]

F = 15, so 48 + 15 [1] = 63

Answer: 63

01.3 What is the result of applying a right binary shift of one to the bit pattern 00001100? Express your answer as an 8 bit binary bit pattern.

[1 mark]

00000110

01.4 Explain how a binary number can be multiplied by 8 by applying binary shifts.

[2 marks]

Left shift [1] of 3 [1] or three [1] left shifts [1]

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

[2 marks]

```
    00110100
    01000100
 +  01010101
    11001101
```

03.1 Write down the range of decimal numbers which can be represented using 6-bit binary.

[1 mark]

0 to 63 or 0-63 (note question says range so needs to be in this form)

03.2 How many bits are there in 2 bytes?

[1 mark]

16 (2 x 8)