

01 Convert the binary number 10110111 into decimal.

[1 mark]

183

02 How many bits are there in 3 megabytes? Show your working.

[3 marks]

3 MB = 3 x 1000 KB = 3000 KB [1 mark for multiplying by 1000 somewhere in answer]

3000KB = 3000 x 1000 Bytes = 3,000,000 Bytes

3,000,000 Bytes = 3 million x 8 bits = 24 million bits [1 mark for multiplying by 8]

03.1 Apply a binary shift three places to the left to the bit pattern 00010110

[1 mark]

10110000

03.2 State the arithmetic effect of applying a left binary shift of four to a binary number

[1 mark]

Multiply it by 16 [1 mark] or or x2 x2 x2 x2 etc... [1 mark]

03.3 State the arithmetic effect of applying a left binary shift of two followed by the right binary shift of three to a binary number

[1 mark]

Half it [1 mark] or divide it by 2 [1 mark]

04.1 Convert the hexadecimal number 2D into binary. You should show your working

[2 marks]

00101101 – 1 mark for 0010 on left [1]; 1 mark for 1101 on right [1]

04.2 Convert the binary number 11100010 into hexadecimal. You should show your working

[2 marks]

1110 = 14 = E

0010 = 2 = 2

Answer: E2 [1 mark for each side or for working if answer wrong]