01.1 Convert the hexadecimal number CA into binary.

[2 marks]

C = 12 = 1100 [1] A = 10 = 1010 [1]   so answer is 11001010

01.2 What binary shift can be used to **half** the value of a binary number?

[2 marks]

right shift [1] of one [1]

01.3 The Danish alphabet has **29** characters. What is the minimum number of bits needed to be able to represent any character from the Danish alphabet?

[1 mark]

5 bits – this will allow for numbers from 0 to 31, which is more than 29 numbers

01.4 How many binary numbers can be represented using **7 bits**?

[1 marks]

128 – don't forget the 0

01.5 Write down the largest decimal number that can be represented using 8 bit binary.

[1 mark]

255

02.1 State the maximum number of different colours that can be used if a bitmap image has a colour depth of **seven** bits.

[1 mark]

128 – don't forget the 0

02.2 Calculate the minimum file size in **bits** of a 10 by 10 pixel image with a colour depth of 3 bits.

[1 mark]

= 10 x 10 x 3 = 300 bits

02.3 Calculate the minimum file size in **bytes** of a 10 by 10 pixel image with 12 different colours. You should show your working.

[3 marks]

10 x 10 = 100 [1]

12 colours needs 4 bits [1]

=100 x 4 = 400 bits / 8 = 50 Bytes [1]