

**01.1** Convert the binary number 00101110 into a decimal number.

**[1 mark]**

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**01.2** Convert the decimal number 62 into hexadecimal. You should show your working.

**[2 marks]**

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**01.3** What is the arithmetic effect of applying a left binary shift of three to a bit pattern?

**[1 mark]**

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

**[2 marks]**

$$\begin{array}{r} 01000010 \\ 00001010 \\ + 01001011 \\ \hline \end{array}$$

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**03.1** The term pixel is short for Picture Element. Define the term pixel.

**[1 mark]**

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**03.2** A 10 pixel x 10 pixel image contains five different colours. Calculate the minimum file size, in bits, of this image when represented as a bitmap. You should show your working.

**[3 marks]**

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**04** A sampling rate of 10,000 Hz and a sample resolution of 4 bits is used to make a digital recording of a sound that lasts 50 seconds. Calculate the file size of the resulting audio file in megabytes (MB). You should show your working

**[3 marks]**

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