Binary Revision Questions

1 A bit pattern is shown below

00101101

1.1 Convert the bit pattern shown above to decimal

[1 mark]

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1.2 Convert the bit pattern shown above to hexadecimal. You should show your working

[2 marks]

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Answer: ……

2 Convert the decimal number 87 into binary

[1 mark]

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3 Convert the hexadecimal number 4C into decimal. Show your working.

[2 marks]

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Answer: ……

4 Add together the two binary numbers shown below. Give your answer in binary.

[1 mark]

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  01000101
+ 00010011
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```

5 Add together the two binary numbers shown below. Give your answer in decimal.

[2 marks]

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  00010111
+ 00100100
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```

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Answer: ……

6 Add together the three binary numbers shown below. Give your answer in binary.

[2 marks]

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  01001111
  00010010
+ 01000010
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```

7 A bit pattern is shown below.

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01110110
```

7.1 Apply a logical binary shift of one place to the right on the bit pattern shown

[1 mark]

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7.2 What is the mathematical effect of applying a logical binary shift of one place to the right on a bit pattern?

[1 mark]

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8 An eight-bit binary number is called a Byte. What is the largest number that can be represented using one Byte?

[1 mark]

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9 Jasper has an image file which is 2,400 Bytes in size.

9.1 Convert 2,400 Bytes to kilobytes.

[1 mark]

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Answer: ……

10 Jasmine has a sound file which is 4MB in size.

10.1 What does the abbreviation MB mean?

[1 mark]

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10.2 Convert the size of Jasmine's file to Bytes. Show your working.

[2 marks]

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Answer: ……

11 Jilly has a text file which is 10 Bytes in size. Convert the size of Jilly's file to bits. Show your working.

[2 marks]

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Answer: ……

12 How many bits are there in 2MB? Show your working.

[2 marks]

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Answer: ……

13 Josie has a bitmap image which is 10 pixels wide, 5 pixels high and uses 8 bits to represent each colour.

13.1 How many different colours can Josie's bitmap image contain?

[1 mark]

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13.2 Calculate the file size of Josie's bitmap image. Show your working.

[2 marks]

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Answer: ……

14 Jim has a sound file which is 10 seconds long. It has been sampled using 16 bit sampling resolution at a sampling rate of 10kHz.

14.1 Calculate the file size of Jim's sound file. Show your working.

[3 marks]

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Answer: ……