AQA
Realising potential

LANGLEY PARK SCHOOL FOR BOYS

MORES ET STUDIA

GCSE COMPUTER SCIENCE

GCSE (8520)

UNIT 3.2

3.2 Converting between number bases

Content	Additional information
Understand how binary can be used to represent whole numbers.	Students must be able to represent decimal values between 0 and 255 in binary.
Understand how hexadecimal can be used to represent whole numbers.	Students must be able to represent decimal values between 0 and 255 in hexadecimal.
Be able to convert in both directions between: • binary and decimal • binary and hexadecimal • decimal and hexadecimal.	The following equivalent maximum values will be used: • decimal: 255 • binary: 1111 1111 • hexadecimal: FF

SPECIMEN MATERIAL 2015

0 1 A bit pattern is shown in **Figure 1**.

Figure 1

01001110

0 1 . 1 Convert the bit pattern in **Figure 1** into decimal.

[1 mark]

0 1 . 2 Convert the bit pattern in **Figure 1** into hexadecimal.

[2 marks]

SPECIMEN PAPER 1 SUPPLEMENTAL MATERIAL 2015

1 (a) State the denary representation of the binary number 10010111

[1 mark]

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.....

.....

1 (b) State the hexadecimal representation of the denary number 125. You must show your working.

[2 marks]

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.....

.....

1 (d) The ASCII character set uses seven bits to encode every character.

What is the total number of characters that can be encoded in ASCII?

[1 mark]

.....

.....

1 (a) State the **denary** representation of the binary number 10111010.

[1 mark]

.....

.....

1 (b) State the **hexadecimal** representation of the binary number 1110.

[1 mark]

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1 (c) State the **denary** representation of the hexadecimal number 4C. You **must** show your working.

[2 marks]

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.....

1 (a) State the **binary** representation of the denary number 87.

[1 mark]

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1 (b) State the **binary** representation of the hexadecimal number CE. You must show your working.

[2 marks]

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_____

_____

1 (c) Place these **three** numbers into order of size (**1–3** where **1** is the largest and **3** is the smallest).

Number	Order (1–3)
The denary number `12`	
The binary number `1110`	
The hexadecimal number `D`	

[2 marks]

1 (d) What is the minimum number of bits needed to be able to represent any character from a character set that contains only the 26 lower-case letters of the alphabet?

[1 mark]

2 (d) How many bits does ASCII use to represent a single character?

[1 mark]

PAPER 2 JUNE 2018

0 1 A bit pattern is shown in **Figure 1**.

Figure 1

10011100

0 1 . 1 Convert the bit pattern shown in **Figure 1** into decimal.

[1 mark]

0 1 . 2 Convert the bit pattern shown in **Figure 1** into hexadecimal.

You should show your working.

[2 marks]

Answer: _____

PAPER 2 2019

0 1 . 1 Convert the decimal number 197 into binary.

[1 mark]

0 1 . 2 Convert the hexadecimal number A4 into decimal.

Show your working.

[2 marks]

Answer _____