01.1 Convert the decimal number 97 into an 8-bit binary number.

[1 mark]

00110001

01.2 Convert the decimal number 117 into hexadecimal. You should show your working.

[2 marks]

1 mark for dividing by 16 even if answer wrong – 117/16 is 7 rem 5;

1 mark for each half of answer

Answer: 75

01.3 Give two reasons why programmers might use hexadecimal rather than binary to represent numbers.

[2 marks]

shorter/quicker to write down [1] easier for humans to understand [1] less likely to make errors [1]

Accept idea of direct equivalence from 8-bit binary to hexadecimal (FF = 11111111) [1]

02 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]

128 (don't forget the 0)

03.1 Place the following quantities in order of size (1-4, where 1 is smallest and 4 is largest)

[3 marks]

Quantity	**Order (1-4)**	
2.3 MB	2	=2,300 kB
2,800 kB	3	
0.3 GB	4	= 300 MB
14,000 Bytes	1	= 14kB

03.2 How many kilobytes are there in 4 TB? Show your working.

[2 marks]

[1] Mark for multiplying by 1000 anywhere: e.g. 4 TB = 4 x 1000 GB = 4,000 GB etc…

4,000 GB = 4,000 x 1000 MB = 4,000,000 MB; 4,000,000 MB x 1000 kB =

Answer: 4,000,000,000