ASCII and Unicode are used to represent characters.

01 The ASCII character set uses 7 bits to encode each character.

01.1 State the total number of characters which can be encoded using ASCII.

[1 mark]

128 (characters 0 to 127 with 7 bits, so 128 total characters)

01.2 The word "Bananas" is to be encoded using ASCII. How many bits are needed to encode it?

[1 mark]

7 characters at 7 bits each = 7 x 7 = 49 bits

01.3 The character F is represented in ASCII code as the decimal value 070.

Using this information, state the decimal ASCII code value used to represent each of the characters below.

[2 marks]

D: 068   J: 074

02.1 State **two** advantages of using Unicode instead of ASCII.

[2 marks]

- more characters available – e.g symbols, emojis, mathematical symbols
- can encode characters from different languages

02.2 Describe **one** disadvantage of using Unicode instead of ASCII.

[2 marks]

Look for 1 developed point:

- More storage space required – 16 bits used per character – so more memory needed to store data
- Slower to transmit/send/transfer – 16 bits used per character – means messages use more data – can be a problem with slow bandwidth
- problems with legacy systems not able to use Unicode – which means fewer characters can be used

03 The character g is represented in ASCII code using the decimal value 103.

What decimal character code will the character g be represented with if it is encoded using Unicode?

[1 mark]

103 (the values are the same for the first 128 character codes – this is a knowledge question)