



1.4.1 Character Sets

Q1

State why computer systems store data in binary.

[1 mark]

- **Computers use binary logic for on/off // 0/1**
 - **Computer systems are based on switches/transistors**
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Q2

Given that computers store everything in binary, explain how they are able to represent text.

[2 marks]

- **Computers use a character set ASCII/Unicode**
 - **... to map binary values to characters**
 - **Each Character is represented by a unique value**
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Q3

Give one similarity between ASCII and Unicode.

[1 mark]

- **Both use binary to represent characters / are character sets**
 - **The first 7/8 bits of Unicode is the same as ASCII (overlaps)**
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Q4

Give two differences between ASCII and Unicode.

[2 marks]

- **ASCII has fewer characters (128/256) // Unicode has more characters**
 - **ASCII is 7/8 bits whereas Unicode can be larger with 16/32 bits**
 - **ASCII is limited to Latin/European characters whereas Unicode can represent symbols (e.g. Chinese/emojis)**
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Q5

A database currently is storing character using the ASCII character set but has decided to switch to the Unicode UTF-32 character set. ASCII uses 1 byte per character while Unicode UTF-32 uses 4 bytes per character.

Give an advantage and disadvantage of changing character sets from ASCII to Unicode UTF-32.

[2 marks]

Advantage

- More characters can be represented
- May include foreign alphabets
- May include emojis

Disadvantage

- Records will take up more storage
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