1 A computer stores data temporarily in random access memory (RAM).

(a) RAM is one example of primary storage.

Give **one** other example of primary storage.

..... [1]

(b) Give **one** reason why data is only stored temporarily in the RAM.

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..... [1]

(c) The denary numbers 19 and 230 are converted to binary numbers to be stored in the RAM.

Convert the **two** denary numbers to binary numbers.

19 .....

230 .....
[2]

Working space

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(d) The hexadecimal numbers 35 and 8AD are converted to binary numbers to be stored in the RAM.

Convert the **two** hexadecimal numbers to binary numbers.

35 .....

8AD .....
[2]

Working space

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(e) The 8-bit binary numbers 01100101 and 01110000 are stored in RAM.

The binary numbers are added together.

Add the **two** binary numbers using binary addition.

Give your answer in binary. You must show all your working.

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  0 1 1 0 0 1 0 1
+ 0 1 1 1 0 0 0 0
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[3]

(f) An overflow occurs when two other 8-bit binary numbers are added together.

Explain why the overflow error occurs.

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..... [2]

(g) The negative denary number –22 is stored in RAM.

Negative denary numbers can be represented as binary using two's complement.

Give the two's complement 8-bit binary integer that would be stored for the denary number –22.

You must show all your working.

Working space .....

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Two's complement 8-bit binary integer .....
[2]