

6-A-Day – Computer Science GCSE (44)

Q1

Dipesh is thinking of buying a tablet computer to replace his old desktop computer.

(a) Describe how the CPU and RAM work together to enable the tablet computer to operate.

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..... [3]

Q2

The tablet computer also uses cache memory.

Describe the purpose of cache memory.

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..... [2]

Q3

A microwave oven is controlled by a small, specially built CPU.

The table below shows some CPU instructions and what they mean.

CPU instruction	Meaning
00001000 00010100	Add 20 to the timer
00001000 00000001	Add 1 to the timer
00000100 00000001	Subtract 1 from the timer

(a) Using examples from the instructions above, state what is meant by:

(i) an opcode

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..... [2]

(ii) an operand

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..... [2]

<p>Q4</p>	<p>The time displayed on the microwave oven is represented as two 8-bit binary numbers, one for the minutes and one for the seconds.</p> <p>For example; "8:20" is stored as 00001000 00010100 "15:45" is stored as 00001111 00101101</p> <p>(b) Show how the time 5:30 will be stored.</p> <p>.....</p> <p>..... [2]</p>
<p>Q5</p>	<p>00001000 00010100 can represent either the instruction for "Add 20 to the timer" or the data for the time "8:20".</p> <p>Explain how the CPU can determine whether it represents an instruction or data.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>..... [1]</p>
<p>Q6</p>	<p>A bank uses a local area network to connect all the computers in its head office.</p> <p>(a) State two ways the local area network can be used to monitor the work of employees.</p> <p>1</p> <p>.....</p> <p>2</p> <p>..... [2]</p>