End of topic test

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| Name: | Will Dargan |

1. State the purpose of the CPU. 1 [2]

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| To execute instructions and manage data in the computer.  Fetch instructions  Decode instructions |

1. State the name of the component that performs calculations and decisions. [1]

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| Arithmetic Logic Unit |

1. The program counter and accumulator are examples of what components of a CPU? [1]

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| Registers |

1. Describe the purpose of the cache. [2]

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| To store frequently used instructions and data. |

1. State two functions of the control unit in a CPU. 1 [2]

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| * To control the flow of data around the CPU. * To control the flow of data into and out of the CPU. * Decode instructions |

1. Describe the purpose of the memory data register. [2]

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| The memory data register holds data being transferred between the CPU and main memory. |

1. State an example of an embedded system and explain why it is a computer system. [2]

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| A TV is an embedded system as it has to process data being received and display it on the screen. |

1. Explain the purpose of the program counter, and how its value changes. [2]

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| The program counter holds the memory address of the next instruction. Its value is incremented by one in the fetch portion of the cycle. |

1. State three factors that affect the speed of a CPU. [3]

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| * Number of cores * Clock speed * Cache size |

1. A von Neumann machine has a fetch, decode, execute cycle.  
   Explain what happens at each stage of this cycle. 2 [3]

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| * Fetch – The CPU fetches the next instruction from main menu. The program counter is incremented by one. * Decode – The control unit decodes the instruction and sends it to the ALU. * Execute – The instruction is executed and the cycle repeats. Fetching data from memory. Writing back to RAM. |

**End of test**

**Total 20 marks**

**17 marks**