

Buses

The components of a computer system are connected together using buses.

Describe what is meant by the term bus and provide an example of a type of bus used by system components.

[2 marks]



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Control Unit

The control unit (CU) is a crucial component of the CPU.

State the purpose of the control unit.

[1 mark]

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Address bus question

System components are connected by buses. One of these buses is the address bus and it is usually described in terms of bits, e.g. a 32-bit address bus.

What does it mean for a computer system to have a 32-bit address bus? Provide an example of how the size of an address bus impacts a computer system's memory capability. **[2 marks]**

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Arithmetic logic unit (ALU) operations

The Arithmetic Logic Unit (ALU) is a crucial component within a computer's processor. The ALU can carry out several different types of operation, such as arithmetic operations.

State one other operation that an ALU carries out and provide an example of how that operation is used. **[2 marks]**

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Compression recommendation

The choice between lossy and lossless compression depends on the specific requirements and the nature of the data being compressed.

Identify which compression method is the most suitable when compressing a text file and justify why you have chosen this method.

[2 marks]

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Primary and secondary storage

Main memory is sometimes referred to as primary storage.

State two differences between primary and secondary storage.

[2 marks]

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Virtual memory

One concept in memory management is virtual memory, which plays an essential role in modern operating systems.

What is the purpose of virtual memory in a computer system?

[1 marks]

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High level language advantage

Most application programmers use high level languages to write computer programs.

State two advantages to a programmer of using a high level language.

[2 marks]

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Low level language question

Systems programmers write and maintain systems software such as utilities and device drivers. They often use low level languages to carry out these tasks.

Explain what is meant by a low level language. **[2 marks]**

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Compiler

In programming, there are various tools and processes involved in turning written code into a functional program that can be executed by a computer. One of the critical tools used in this process is a compiler. Understanding the role of a compiler is fundamental to grasping how software development works.

Give a reason why a programmer would use a compiler.

[1 mark]