Hardware Spec

Architecture :
- Describe the characteristics of CPU architecture, including Von Neumann architectures.
- Identify and explain the role of the components of the CPU in the fetch-decode-execute cycle.
- Explain how performance is affected by the cache size, clock speed and number of cores.
- Explain the difference between RISC and CISC types of processors.
- Input/output Describe the use and characteristics of input and output devices.

Primary storage
- Explain the functional characteristics of Random Access Memory (RAM), Read Only Memory (ROM), flash memory and cache memory.

Secondary storage
- Describe the characteristics of contemporary secondary storage technologies including magnetic, optical and solid state.
- Explain the functional characteristics of contemporary secondary storage devices in terms of suitability, durability, portability and speed.

Storage requirements
- Describe the relationship between data storage units, including bit, nybble, byte, kilobyte and additional prefix multipliers.
- Describe data capacity and calculate data capacity requirements.

Additional hardware components
- Describe the characteristics and role of additional hardware, including GPU, sound cards and motherboards.

Embedded systems
- Describe the use and give examples of embedded
- systems.

2015- CPU components

Tick (✓) the correct boxes below to show which **four** of the following items are usually found on the *Central Processing Unit (CPU)* of a personal computer. [4]

Hard disk drive	1
Controller	2
RAM	3
Internal memory	4
Arithmetic Logic Unit (ALU)	5
BIOS	6
Registers	7
ROM	8

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2018 – CPU Performance

The computer systems used at the warehouse are starting to run slowly when searching for items in stock.

(i) The warehouse is considering replacing the CPUs in their computer systems with either of the following:

CPU 1	CPU 2
3 GHz Quad-core 4MB cache	4 GHz Dual-core 8MB cache

Compare the performance of the two CPUs. [6]

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2015 – Secondary storage

(a) Complete the table below comparing the typical uses of **different** frequently used *backing storage*.

The **first row** has been completed for you. [3]

Backing storage	Typical use (Suitability)
Compact Disc	Storing and transferring music files or photographs
	Moving small files from work to home
External hard drive	
	Backing up a large commercial server

2015 – Secondary storage

(b) In the table below, put the different backing storage from **2*(a)*** in order of **access speeds**. Put the fastest first. [1]

Fastest ⟶ Slowest

Backing storage 1	Backing storage 2	Backing storage 3	Backing storage 4

2014 – Secondary storage

Tick (✓) the correct boxes below to show which **four** of the following items are secondary storage media. [4]

External hard disk drive	1
CPU	2
DVD	3
Cache	4
Network interface card	5
Solid state hard drive	6
USB flash memory stick	7
ROM	8

2016 – Secondary storage

(a) A firm of architects store plans for houses using cloud storage. Describe two advantages for the architects of using cloud storage compared with other traditional secondary storage methods. [2]

Advantage 1 .....

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Advantage 2 .....

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(b) Some of the architects still prefer to store their designs on a traditional secondary storage medium. Give a reason why they might not want to use cloud storage. [1]

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Sample - Additional hardware

(c) Additional hardware components are used in most computer systems.

Describe the role of each of the following.

(i) Motherboard. [2]

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(ii) GPU. [2]

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Sample 2017 - Additional hardware

Other hardware components are used in most computer systems.

Describe the role of each of the following.

(i) Sound card. [2]

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(ii) Motherboard. [2]

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What is the difference between and Integrated GPU and a dedicated GPU [4 Marks]

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