1.2 Memory and Storage Misconceptions and Questions

QUESTIONS	ANSWERS
Does ROM store the operating system?	No. The operating system (OS) is stored on secondary storage. ROM holds BIOS which locates all the hardware prior to the operating system loading. It will then get the processor to load the OS by pointing to where it is stored.
Why does RAM not always speed a computer up?	Adding more RAM to a system will only help if the RAM that is currently installed is always filled to 100% and more space is needed.
Is flash memory really memory?	Yes. Flash memory is different to RAM though as it is non-volatile.
Do students need to understand how the different types of storage work?	Students do not need to learn about how each one functions, but they need to know how the data is stored e.g. using magnetised elements, lasers, logic circuits.
What is the largest unit that students will be tested on?	Petabyte
How many bytes are in a Kilobyte 1000 or 1024?	There are 1024 Bytes in a Kilobyte.
How should students calculate numbers in an exam?	Candidates may use 1024 or 1000 for calculations. As the paper is a no-calculator paper, 1,000 is easier to multiply by and will be accepted.

MISCONCEPTIONS	EXPLANATION
Virtual Memory is permanently created.	Virtual memory is only created and used if needed, as it is much slower than RAM. Virtual memory is controlled/created by the Operating System.
USB is a storage device	Students refer to their USB memory stick as a USB. USB is a connection protocol, not a storage device. A USB memory stick is a solid state storage device that connects to the PC through a USB Port.
Optical is anything that can be seen	When recalling optical, students associate it with vision, not the use of lasers and light.
Students often say things are 'faster'	Students must be confident that they understand transfer speeds for example all storage devices will appear to transfer the 10KB files very quickly but for large files SSD would be the fastest due to its data transfer speeds.

Judging the 'best devices' for use	It may be that there are other justifications for using mediums compared to ones that may appear obvious – where students provide well supported arguments for use/selection of a storage device, award credit. For example, choice of medium for a PC – you could argue SSD or Magnetic HDDs are the best option – dependent on circumstances.
That 1 Byte equates to 1000 bytes	There is actually 1024 Bytes in a Kilobytes because computers are based on the binary system. 2^{10} is 1024. There is not much difference when using smaller units however when using Petabytes the difference is huge.
Computers understand 1 and 0.	Computers do not understand the numbers 1 and 0, but rather flashes of electricity that pass through the transistors. 1 means that there has been a pulse of electricity and 0 means no pulse.