01.1 The following are types of memory and storage (labelled A – F):

A. Cache memory	B. Magnetic media	C. Non-volatile memory
D. Optical media	E. ROM	F. Solid state media

For each of the descriptions in the table, write the label of the type of memory or storage it best describes.

Description	Label
Uses a laser to read the data	D
Contents cannot be edited	E
Small and very fast storage found close to the processor	A

[3 marks]

01.2 Bob purchases a 4GB SD card for use as secondary storage in his phone. Calculate how many megabytes there are in 4GB. Show your working.

[2 marks]

4 GB = 4 x 1000 MB = 4,000 MB [1 mark for multiplying by 1000]

Answer: 4000

01.3 An SD card is a type of solid state storage.

State **two** advantages of solid state storage compared to magnetic storage.

[2 marks]

Any from: lighter; smaller; more robust (less likely to be damaged/broken/break down/fail); uses less power; generates less heat; quieter

01.4 Many modern desktop computers have both solid state drives and magnetic hard disk drives.

Give **two** reasons why desktop computers have a magnetic hard disk drive and a solid state drive instead of having just a solid state drive

[2 marks]

Any from: using only solid state will cost more/HDD cheaper; hard disk has more storage capacity; allows Operating system to be stored on SDD to load more quickly etc…

01.5 Explain how data is read from optical media such as a DVD.

[5 marks]

- disk rotates (at high speed) - this means the tracking laser can get to all parts of the drive;
- the laser head moves across the radius of the disk;
- laser shines onto the disk;
- tiny indentations/pits/bumps reflect light differently (called lands and flats);
- reflected light is interpreted into 1s and 0s representing data stored on disk;
- data is stored on a single spiral track (like on a vinyl record and rather than a series of self-contained concentric tracks).

01.6 A student is asked to compare solid state drives, magnetic hard drives and optical media such as CDs. This is the student's answer:

> "Both a solid state drive and a hard drive contain moving parts although the way they store data is different. Both solid state drives and hard drives can have large storage capacities but a hard drive's capacity is commonly greater. Both can be greater than standard CDs. Data is read more quickly from a hard drive than from a normal CD. Data is also read more quickly from a hard drive than from a solid state drive."

The student has made two errors in their answer. Identify each error and explain why the student is wrong.

[4 marks]

1. Solid state does not contain moving parts – it uses electrical charge to store data

2. Data is not read more quickly from a hard drive than from a solid state drive – solid state drives have much faster data transfer rates because they do not need to move the drive head to the correct part of the platter to find data