MODULE B MEMORY AND STORAGE · B3

Why computers need secondary storage: mark scheme

20 marks · Cambridge 0478 syllabus 3.3.2

How to use. Mark positively. "Any N from" means award one mark per point up to N. **//** separates alternative answers for the same mark. Words in (brackets) are not needed for the mark. "..." means the point depends on the one before. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1 0478 3.3.1, 3.3.2	HDD: Secondary RAM: Primary SSD: Secondary ROM: Primary	**4**	1 mark per correct row. More than one tick in a row: no mark for that row.
2 0478 3.3.2	directly RAM // primary storage // main memory non-volatile permanent // long-term	**4**	1 mark per correct word. Do not accept "ROM" or "cache" for the second blank. Do not accept "secure" / "backup" for the last blank.
3(a) 0478 3.3.2	Any **two** from: To store the software / loan log permanently // long-term It is non-volatile // RAM is volatile ... so the software / loan log is not lost when the kiosk is switched off (each night) RAM is too small to hold all the software and the loan log	**2**	max 2. Do not accept "for backups" alone: a backup may be a use, but it is not the purpose. Do not accept "used when RAM is full".
3(b) 0478 3.3.2	Any **three** from: The software is stored on secondary storage (e.g. HDD / SSD) while the kiosk is off The CPU cannot access secondary storage directly The software / instructions (and data) are copied / loaded into RAM The CPU fetches the instructions (and data) from RAM // executes them from RAM	**3**	max 3. Do not accept "the CPU runs the software straight from the hard disk". Do not accept "loaded into ROM".

QUESTION	ANSWER	MARKS	GUIDANCE
4 0478 3.3.2	Any **two** differences, 2 marks each (one for each side): Primary storage is directly accessed by the CPU // secondary storage is not directly accessed by the CPU RAM is volatile // secondary storage is non-volatile Primary storage is faster to access // secondary storage is slower to access Primary storage usually has a smaller capacity // secondary storage usually has a larger capacity Primary storage holds the data / instructions currently in use // secondary storage holds data / programs (more) permanently	**4**	max 4. 1 mark for one side of a difference, 1 for the matching other side. A single comparative sentence covering both sides earns 2 (e.g. "primary is faster to access than secondary"). Do not accept "primary storage is volatile" (ROM is non-volatile): accept "RAM is volatile".
5 0478 3.3.2	Any **three** from: The version saved an hour earlier will be available ... because it is stored on the SSD / secondary storage, which is non-volatile The latest (unsaved) edits are lost ... because they were only in RAM ... which is volatile // loses its data when power is lost	**3**	max 3. Do not accept "the recording is lost completely".

Total: 20 marks