MODULE B MEMORY AND STORAGE · B3

Why computers need secondary storage: mark scheme

20 marks · OCR J277 spec 1.2.2

How to use. 1 mark per bullet up to the maximum shown. **/** separates alternative words; **//** separates alternative statements for the same mark. Words in (brackets) are not needed for the mark. "..." means the point depends on the one before. NE = not enough. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 1.2.2	(Non-volatile) storage that keeps data / programs / files long-term // permanently // when the power is off	**1**	Must convey long-term / permanent / kept without power. Allow "storage other than RAM / ROM, used to store data permanently". Do not accept "storage used when RAM is full" (that is virtual memory). Do not accept "storage for backups" alone. "Extra storage" alone NE.
1(b) J277 1.2.2	RAM: Primary Solid state drive: Secondary ROM: Primary USB flash drive: Secondary	**4**	1 mark per correct row. 2+ ticks in a row = 0 for that row.
2(a) J277 1.2.2	Operating system Applications / programs / apps (e.g. the route / map software) (Delivery) photos (Recorded) signatures / delivery records Route data / maps	**2**	1 mark each, max 2. Mark first two answers only. Do not accept "the BIOS / boot program" (stored in ROM). "Data" / "files" alone NE.
2(b) J277 1.2.2	To store data / photos / signatures / programs long-term // permanently ... because it is non-volatile // RAM is volatile ... so data is not lost when the tablet is switched off / the battery runs out RAM is too small (4 GB) to hold all the programs and files // secondary storage has a larger capacity (64 GB)	**2**	Max 2. Max 1 for an answer not applied to the tablet. Do not accept "to back up data" without long-term / permanent (no BOD). Do not accept "used when RAM is full".
3 J277 1.2.2	Only used when RAM is full: False Non-volatile: True Only needed for backups: False Larger capacity than RAM: True	**4**	1 mark per correct row. 2+ ticks in a row = 0 for that row.

QUESTION	ANSWER	MARKS	GUIDANCE
4 J277 1.2.2	The morning version / the last saved version (without the new rooms) will be available ... because it was saved to secondary storage, which is non-volatile // secondary storage keeps data without power The three new rooms / unsaved changes are lost ... because they were only held in RAM // they had not been saved to secondary storage ... and RAM is volatile // RAM loses its contents when power is lost	**3**	Max 3. Do not accept "the whole plan is lost". Do not accept "the changes are in ROM". Allow "hard drive / SSD" for secondary storage.
5 J277 1.2.2	RAM is volatile ... so programs / files would be lost when the computer is switched off ... so they would have to be reinstalled / recreated each time // the user would have nowhere to save their work RAM has a (much) smaller capacity than secondary storage ... so it could not hold all programs / files at once RAM is (much) more expensive per GB ... so enough RAM to hold everything would cost too much	**4**	Max 4. "RAM is faster" earns no mark (it is a reason to use RAM, not against it). "RAM is small" alone NE without a comparison to secondary storage or to the files.

Total: 20 marks