MODULE E NETWORKS · E1

LANs and WANs: mark scheme

21 marks · OCR J277 spec 1.3.1

How to use. 1 mark per bullet up to the maximum shown. **/** separates alternative answers. Words in (brackets) are not needed for the mark. Credit any other valid answer that shows the same understanding. Spec point covered: J277 1.3.1 Types of network: LAN (Local Area Network), WAN (Wide Area Network).

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 1.3.1	Local Area Network	**1**	All three words needed. Ignore capitals. Do not accept "Large Area Network".
1(b) J277 1.3.1	Wide Area Network	**1**	All three words needed. Do not accept "Wireless Area Network" / "World Area Network".
2(a) J277 1.3.1	Hospital, one site: LAN Bakeries in eight towns, rented lines: WAN Home laptops and printer: LAN Ships linked by satellite: WAN	**4**	1 mark per correct row. 2+ ticks in a row = 0 for that row. The hospital row tests that the number of computers does not decide the type.
3(a) J277 1.3.1	Covers a small geographical area / one site / one building Hardware / infrastructure is owned (and managed) by the organisation (that uses it) / own (internal) hardware / no third-party (external) hardware Computers are connected (directly) by the organisation's own cables / wireless access points	**2**	Max 2. "Own hardware" and "no third party" are the same idea: credit once. Do not accept benefits instead of characteristics, e.g. "cheaper" / "faster" / "more secure" (OCR examiners' report, June 2023). Do not accept "small number of computers" / "few computers".
3(b) J277 1.3.1	Covers a large / wide geographical area / connects computers that are (geographically) far apart / across cities / countries Connects LANs together Uses (communication) links / infrastructure owned by a third party / rented / leased (e.g. from a telecoms company) Can use e.g. phone lines / cables / satellite links / undersea cables	**2**	Max 2. Do not accept "lots of computers" alone. Do not accept "slower" / "more expensive" alone: these are not characteristics.

QUESTION	ANSWER	MARKS	GUIDANCE
4(a) J277 1.3.1	Decided by number of computers: False WAN can use satellite links: True Internet is a WAN: True All WAN hardware owned by the organisation: False	**4**	1 mark per correct row. 2+ ticks in a row = 0 for that row.
5(a) J277 1.3.1	The surgeries are geographically far apart / 200 km apart / in different cities / it covers a large geographical area The practice will not own the link between them / the link will be rented / leased from a third party (e.g. a telecoms company) It will connect two LANs together	**2**	1 mark per bullet, max 2. A fully generic definition with no link to the surgeries scores max 1.
5(b) J277 1.3.1	The number of computers does not decide whether a network is a LAN or a WAN The new surgery is one site / a small geographical area The practice will own the hardware in the surgery / no third-party hardware is used (inside it) ... so its network will still be a LAN	**2**	1 mark per bullet, max 2. "It is a LAN" alone with no reason = 0.
5(c) J277 1.3.1	The internet	**1**	Do not accept "the World Wide Web" / "the web": the web is a service that uses the internet.
6(a) J277 1.3.1	The organisation owns the hardware / cabling in a LAN / no third party is involved (1) ... so there are no (ongoing) rental / leasing fees to pay (1) A WAN uses links rented / leased from a third party (e.g. a telecoms company) (1) ... which the organisation must keep paying for (1) A LAN covers a small area (1) ... so less cabling / hardware is needed to connect it (1)	**2**	Mark in pairs: 1 for the reason, 1 for the explanation. The second mark depends on the first. "It is smaller" / "it is cheaper" alone = 0 (NE). Do not accept "fewer computers" as the reason.

Total: 21 marks