MODULE E NETWORKS · E10

Email protocols: mark scheme

19 marks · OCR J277 spec 1.3.2

How to use. 1 mark per bullet up to the maximum shown. **/** separates alternative answers; **//** separates alternative statements for the same mark. Words in (brackets) are not needed for the mark. **NE** = not enough. Spec points covered (J277 1.3.2): common protocols POP (Post Office Protocol), IMAP (Internet Message Access Protocol), SMTP (Simple Mail Transfer Protocol); the basic principles of each protocol, i.e. its purpose and key features; that different types of protocols are used for different purposes. Accept POP3 for POP throughout. Email protocols are not on Cambridge 0478, so there is no IGCSE version of this worksheet.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 1.3.2	Simple Mail Transfer Protocol	**1**	All four words needed. Ignore capitals and minor spelling.
1(b) J277 1.3.2	Internet Message Access Protocol	**1**	All four words needed. Do not accept "Internet Mail Access Protocol".
2 J277 1.3.2	Laptop to sender's mail server: SMTP Mail server to mail server: SMTP Download to one device, usually deleting from server: POP Keep on server, several devices show the same inbox: IMAP	**4**	1 mark per correct row. 2+ ticks in a row = 0 for that row.
3 J277 1.3.2	SMTP collects new emails: False POP email readable without a connection: True IMAP needs server storage: True	**3**	1 mark per correct row. 2+ ticks in a row = 0 for that row.
4 J277 1.3.2	(POP) retrieves/downloads the emails from the mail server ... to the (engineer's) desktop computer / one device The copy on the mail server is (usually) deleted / removed The emails are then stored only on that computer So they can be read offline / without an internet connection Changes are not synced to any other device // other devices would not see the emails	**3**	1 mark per bullet, max 3. "Receives emails" / "gets the data" alone = NE: must describe downloading from the server. Do not accept "POP sends emails". Accept "deletes" without "usually".

QUESTION	ANSWER	MARKS	GUIDANCE
5(a) J277 1.3.2	IMAP (1) ... ... emails stay/are kept on the mail server (1) ... she uses three/several/many devices, so each device can view the same emails // she can see the same emails on her phone, tablet and computer (1) ... devices are synced // changes made on one device (read, deleted, moved) show on all devices (1) ... with POP an email would download to one device only, so the other devices would not see it (1)	**3**	1 mark for IMAP, plus up to 2 for justification. POP (or SMTP) = 0 for the whole part. "Sends/receives data" alone = NE: justification must be about viewing/syncing email.
5(b) J277 1.3.2	The delete is made on the (copy on the) mail server // the server copy is deleted (1) So it is also deleted / disappears from the workshop computer (the next time it syncs) (1) Because IMAP keeps all devices synced with the mail server (1)	**2**	Max 2. Follow-through: if POP was recommended in 5(a), credit "the email was never on the workshop computer (1), because POP downloaded it to the phone only and (usually) deleted the server copy (1)". Do not credit "it stays on the workshop computer" with IMAP.
5(c) J277 1.3.2	Syncing needs a connection (1) ... in the van or at a market stall with no signal, new emails/changes will not sync until she reconnects (1) All emails are stored on the mail server // needs server storage (1) ... the server storage could fill up, so she may need to delete emails / pay for more storage (1) A delete on one device removes the email from every device (1) ... an order deleted by mistake on her phone is lost from her workshop computer too (1)	**2**	Mark in pairs: 1 for the drawback, 1 for the explanation in context. Do not accept "she cannot read any email without a connection": IMAP devices can keep copies. "Less secure" / "slower" alone = NE. Follow-through if POP was recommended in 5(a): email is only on one device (1) ... so an order downloaded to her phone cannot be seen on the workshop computer // if that device is lost/broken the emails are lost (1). Credit any other valid answer.

Total: 19 marks