CAMBRIDGE IGCSE (0478)

Module F: The internet

Workbooklet mark scheme · 5 parts · 102 marks

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	Total	**102**

MODULE F THE INTERNET · F1

The internet vs the world wide web: mark scheme

20 marks · Cambridge 0478 syllabus 5.1.1 (the difference between the internet and the world wide web)

How to use. One mark per creditworthy point up to the maximum shown. **/** separates alternative words; **//** separates alternative answers. Words in (brackets) are not needed for the mark. Credit any other valid answer that shows the same understanding. Syllabus notes for 5.1.1: the internet is the infrastructure; the world wide web is the collection of websites and web pages accessed using the internet.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) 0478 5.1.1	The collection of websites and web pages that are accessed using the internet	**1**	If more than one box is ticked, 0 marks.
1(b) 0478 5.1.1	Any two from: (It is the) infrastructure (that carries data) A (global) network of (interconnected) networks // many networks connected together Global / worldwide (network) The hardware / cables / routers / links that connect networks / devices (around the world)	**2**	max 2. Do not accept "a collection of websites / web pages" (that is the world wide web).
2 0478 5.1.1	Undersea fibre-optic cables: internet Furniture shop's website pages: world wide web Routers between networks: internet Train times web page: world wide web Wireless and satellite links: internet Text and images on a recipe home page: world wide web	**6**	One mark per correct row. A row with both boxes ticked scores 0.
3 0478 5.1.1	Accessed using the internet: True Two names for the same thing: False A website is part of the infrastructure: False Other countries could not access the pages without the internet: True	**4**	One mark per correct row. A row with both boxes ticked scores 0.
4(a) 0478 5.1.1	(The) internet	**1**	Accept "internet infrastructure". Do not accept "WAN" / "network" alone.

QUESTION	ANSWER	MARKS	GUIDANCE
4(b) 0478 5.1.1	Any four from: The internet is the infrastructure // a global network of (interconnected) networks ... e.g. the cables / routers / links that connect the hotel's network / computers to other networks (around the world) The world wide web is the collection of websites / web pages ... e.g. the hotel's website / booking pages / room pages are part of the world wide web The world wide web is accessed using the internet // web pages are sent / transferred over the internet ... e.g. guests use the internet to reach / view the hotel's booking pages (from their own devices / other countries) The internet is hardware / physical, the world wide web is content / information // the world wide web is one use of the internet	**4**	max 4. max 3 if there is no reference to the hotel or its website. Do not accept "the internet and the world wide web are the same".

5(a)
0478 5.1.1
	Any two from:
	The world wide web / web pages are accessed using the internet
	Web pages are stored on other computers / web servers (on other networks) // web pages are not stored on the laptop
	... so without the internet (connection) the pages cannot be requested / sent to the laptop
	The spreadsheet is stored locally / on the laptop('s storage) // the spreadsheet does not need to be transferred across the internet
		2	max 2. "The laptop has no internet" alone = 0 (repeats the question).

Total: 20 marks

MODULE F THE INTERNET · F2

URLs, DNS and how a web page reaches your screen: mark scheme

21 marks · Cambridge 0478 syllabus 5.1.2 (URLs) and 5.1.5 (how web pages are located, retrieved and displayed)

How to use. One mark per creditworthy point up to the maximum shown. **/** separates alternative words; **//** separates alternative answers. Words in (brackets) are not needed for the mark. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) 0478 5.1.2	Any two from: A text-based address // an address made of words / characters (An address) for / that locates a web page // website (on the internet / world wide web) It can contain the protocol, the domain name and the web page / file name	**2**	max 2. A correct example URL with no description: max 1. Do not accept "an IP address".
1(b) 0478 5.1.2	www.lakeviewcampsite.example: Domain name booking.html: Web page / file name https: Protocol opening-times.html: Web page / file name	**4**	One mark per correct row. A row with more than one box ticked scores 0.
2(a) 0478 5.1.5	Stores the web pages: Web server Holds a database of domain names and IP addresses: DNS Sends a request for the web page: Web browser Sends the HTML files to the user's device: Web server Renders the HTML: Web browser	**5**	One mark per correct row. A row with more than one box ticked scores 0.
3(a) 0478 5.1.5	Correct order: T, R, P, U, S, Q One mark for each of positions 2 to 6 with the correct letter: 2 = R, 3 = P, 4 = U, 5 = S, 6 = Q	**5**	Mark each position separately. Each letter should be used once.
4(a) 0478 5.1.5	Any two from: The IP address identifies / locates the web server (on the internet) The URL / domain name is text, so it must be converted (by the DNS) to the IP address // the domain name cannot be used to locate the server directly The request for the web page is sent / addressed to the web server's IP address // routers use the IP address to send the request to the correct web server ... so the request reaches the web server that stores the museum's web page	**2**	max 2. Do not accept "to connect to the internet" or "so the page loads faster".
5(a) 0478 5.1.4, 5.1.5	Hypertext markup language	**1**	All three parts needed. Ignore capitals and spacing ("hyper text").

QUESTION	ANSWER	MARKS	GUIDANCE
5(b) 0478 5.1.5	Any two from: The web page is written / created in HTML // HTML describes the content / structure / layout of the page The web server sends the page (to the browser) as HTML (files) The web browser renders / interprets the HTML ... to display the page (text, images, links) on the screen	**2**	max 2. Do not accept "HTML is the protocol used to send the page" (that is HTTP / HTTPS).

Total: 21 marks

MODULE F THE INTERNET · F3

Web browsers and what they do: mark scheme

20 marks · Cambridge 0478 syllabus 5.1.4 (purpose and functions of a web browser)

How to use. One mark per creditworthy point up to the maximum shown. **/** separates alternative words; **//** separates alternative answers. Words in (brackets) are not needed for the mark. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) 0478 5.1.4	To render HTML and display web pages	**1**	Two or more boxes ticked scores 0.
1(b) 0478 5.1.4	HTML // hypertext markup language	**1**	Ignore capitals and spacing ("hyper text"). Do not accept HTTP / HTTPS (these are protocols).
2(a) 0478 5.1.4	Bookmark stores the URL: True Multiple tabs, several pages in one window: True Stores cookies on the web server: False Hardware device: False	**4**	One mark per correct row. A row with both boxes ticked scores 0.
3(a) 0478 5.1.4	One mark for each correct row: Saved dictionary page: (storing) bookmarks // favourites Page visited yesterday: (recording) user history // browsing history Several pages open in one window: (allowing use of) multiple tabs Loads the page again: navigation tools // refresh / reload (button) Kept logged in between visits: (storing) cookies // persistent cookies	**5**	The type of cookie is not needed in row 5. Do not accept "history" in row 1 (the page was deliberately saved). Do not accept "address bar" alone in row 4.

4(a) 0478 5.1.4	Any two from:
	Back (button) // go to the previous page
	Forward (button) // go to the next page (after going back)
	Home (button) // go to the home page
	Stop (loading a page)
	(Clickable) links / hyperlinks (to move between pages)
		2	max 2. Do not accept refresh / reload (excluded by the question). Do not accept the same tool twice (e.g. "back" and "previous page").

4(b) 0478 5.1.4	Any one from: To type / enter a URL / web address (to go to a web page) To show the URL / address of the page currently open To show whether the page uses HTTPS // shows a padlock To type search terms (to search the web)	**1**	max 1. Allow "to type in a (web server's) IP address to open a page". Do not accept "to search" alone with no reference to typing in the bar.

QUESTION	ANSWER	MARKS	GUIDANCE
5(a) 0478 5.1.4	Any one pair: A bookmark is saved by the user (on purpose) ... ... the history is recorded automatically (by the browser) *or* A bookmark is kept only for pages the user chooses ... ... the history lists every / all page(s) visited	**2**	One mark for the bookmark side, one for the history side; the history point must be the opposite of the bookmark point. A correct description of only one side scores 1. Do not accept "a bookmark is better / quicker" alone.
6(a) 0478 5.1.4	Any four from: The browser requests the page from the web server (using its URL) The browser receives the HTML (file) from the web server HTML is a markup language // code / tags that describe the content and layout / structure of the page The browser reads / interprets the HTML (tags) The browser renders the HTML // works out how each part of the page should look and where it goes The browser displays the page on the screen (as formatted headings, text, photo) The browser fetches / loads other files the page uses (e.g. the photo) The browser makes the links clickable // lets the customer follow links to other pages	**4**	max 4. At least one mark must come from rendering / displaying the HTML; otherwise max 3. Do not accept "the browser converts the URL into an IP address" (that is the DNS) or "the browser stores the website" (that is the web server). Do not accept "translates the page into binary".

Total: 20 marks

MODULE F THE INTERNET · F4

Cookies: session vs persistent: mark scheme

21 marks · Cambridge 0478 syllabus 5.1.6 (cookies, session and persistent, and their uses) and 5.1.4 (web browser stores cookies)

How to use. One mark per creditworthy point up to the maximum shown. **/** separates alternative words; **//** separates alternative answers. Words in (brackets) are not needed for the mark. "..." means the point builds on the one before. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) 0478 5.1.6	Any two from: A small text file // a small file / piece of data Sent by a website / web server (when a web page is visited) Stored on the user's computer / device // stored by the web browser Holds data about the user / their visit // e.g. preferences, login details, items in a cart Can be session (temporary) or persistent (kept until it expires)	**2**	max 2. Credit any other valid answer. Do not accept "a program" or "a virus".
1(b) 0478 5.1.4 / 5.1.6	(Web) browser	**1**	Do not accept "the operating system", "the web server" or a brand name.
2(a) 0478 5.1.6	Session cookie deleted when the browser is closed: True Persistent cookie deleted when the user moves to a different page: False Persistent cookie can stay until its expiry date: True Session cookie kept on secondary storage between visits: False	**4**	One mark per correct row. A row with both boxes ticked scores 0.
3(a) 0478 5.1.6	One mark for each correct row: Language and text size: tracking / storing / remembering user preferences // settings Name, address, phone number: saving / storing personal details // auto-filling (a form with) personal details Bikes and helmet in the basket: holding items in an (online) shopping cart / basket No need to enter username and password: storing login details // keeping the user logged in	**4**	Accept equivalent wording. Each situation needs a different function: do not accept "saving personal details" for the login row, or "storing login details" for the name and address row. Do not accept "storing data" or "remembering the user" alone.
3(b) 0478 5.1.6	Language remembered next month: Persistent Basket items removed when the browser is closed: Session Logged in for 14 days: Persistent	**3**	One mark per correct row. A row with both boxes ticked scores 0.

QUESTION	ANSWER	MARKS	GUIDANCE
4(a) 0478 5.1.6	Any four from: A session cookie is temporary // stored in memory (not on secondary storage) A session cookie is deleted when the web browser is closed ... so the guest is logged out / the login is removed when they close the browser ... so the next guest cannot access the first guest's account // personal / booking / payment details A persistent cookie stays on the computer / secondary storage after the browser is closed ... until its expiry date / until it is deleted ... so the next person to use the computer could be logged in (automatically) as the first guest The guest may forget to log out, so a persistent cookie could leave them logged in	**4**	max 4. Do not accept "session cookies are more secure" or "safer" alone. Credit any other valid answer that links the type of cookie to the shared computer.
5(a) 0478 5.1.6	Any three from: When the reader chooses their topics, the website / web server sends a cookie (to the browser) The cookie holds the reader's preferences / chosen topics // an ID linked to them The web browser stores the cookie on the reader's device / secondary storage The cookie is not deleted when the browser is closed // it stays until its expiry date (which is more than a week away) / until it is deleted When the reader visits again, the browser sends the cookie (back) to the website // the website reads the cookie The website uses the data to show the chosen topics first // the reader does not need to choose again	**3**	max 3. Credit any other valid answer. Do not accept "it remembers the user" alone.

Total: 21 marks

MODULE F THE INTERNET · F5

Digital currency and blockchain: mark scheme

20 marks · Cambridge 0478 syllabus (exams 2026-2028) 5.2.1 (the concept of a digital currency and how digital currencies are used) and 5.2.2 (the process of blockchain and how it is used to track digital currency transactions)

How to use. One mark per creditworthy point up to the maximum shown. **/** separates alternative words; **//** separates alternative answers. Words in (brackets) are not needed for the mark. Credit any other valid answer that shows the same understanding. Hash values are not named in the syllabus notes: credit them where valid, but never require them.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) 0478 5.2.1, 5.2.2	Used to pay for goods and services: True Handing over physical coins or notes: False Time-stamped series of records: True Can be edited to correct a mistake: False Each new block linked to the block before it: True	**5**	One mark per correct row. A row with both boxes ticked scores 0.
2(a) 0478 5.2.1	Any one from: A currency / money that exists only electronically // only in electronic / digital form A currency that has no physical form // no physical coins or notes (and is only held / used electronically)	**1**	Accept "only exists virtually / digitally". Do not accept "money used online" or "money on a computer" alone: the answer must show it exists only electronically. Accept a correct example (e.g. cryptocurrency) only alongside the definition.
2(b) 0478 5.2.1	Any two from: The payment is transferred / sent electronically // over the internet / a network ... from the customer's (digital currency) account / wallet to the workshop's account / wallet No physical money is handed over The transaction is recorded (in a digital ledger // blockchain) // the payment can then be tracked	**2**	max 2. Credit any other valid answer. Do not credit "the customer pays online" alone, or answers that describe handing over cash.
3(a) 0478 5.2.2	Any two from: The amount (paid) Who sent the payment // the payer / sender (e.g. the firm) Who received the payment // the payee / recipient (e.g. the driver) A time-stamp // the date / time of the transaction A link to the previous block // the hash (value) of the previous block The block's own hash // unique identifier	**2**	max 2. "Transaction details" on its own and a specific detail of the same transaction (e.g. the amount) score 1 only. Credit any other valid item. Do not accept "the currency" or "money" alone.

QUESTION	ANSWER	MARKS	GUIDANCE
3(b) 0478 5.2.2	Any four from: The payment / transaction details are sent (from the firm's device) to the digital ledger // network The transaction is time-stamped // the date and time are recorded The transaction is stored in a (new) block (with other transactions) The new block is linked to the previous block // to Block 3 // stores the hash of Block 3 The new block is added to the end of the chain // becomes Block 4 Earlier blocks are not changed // the record is only added to, not altered The updated blockchain is copied to / shared with every computer / device that holds the blockchain The payment can now be tracked / traced (by anyone with the ledger)	**4**	max 4. Credit any other valid answer. Do not credit "the payment is added to Block 3" or "Block 3 is updated": earlier blocks are never altered. Encryption of the payment data by the firm's device is creditworthy as one point.
4(a) 0478 5.2.2	Any three from: A blockchain is a series of (time-stamped) records that cannot be altered // new records can only be added (not changed or deleted) Each block is linked to the previous block // Block 3 holds a link to / the hash of Block 2 Changing Block 2 would break its link to Block 3 // to all the later blocks // would change its hash so it no longer matches the one stored in Block 3 ... so the change would be detected (and rejected) Copies of the blockchain are held on many computers // the ledger is decentralised ... so the altered copy would not match the other copies (and would be rejected)	**3**	max 3. Credit any other valid answer. Do not credit "it is secure", "it is encrypted" or "it is protected by a password" alone: these do not explain why the record cannot be altered.
4(b) 0478 5.2.2	Make a new / second payment // transaction (for the amount still owed, which is recorded in a new block added to the blockchain)	**1**	Do not credit any answer that edits, replaces or deletes Block 2.
5(a) 0478 5.2.2	Any two from: Every payment / transaction (the firm made) is recorded (permanently) in the blockchain Each record is time-stamped // shows the date of the payment // so the October 2026 payments can be found Records cannot be altered // deleted, so the accountant can trust that they are accurate / complete Each transaction can be tracked / traced (back through the chain of blocks)	**2**	max 2. Credit any other valid answer. Do not credit "it is easier / faster" alone.

Total: 20 marks