

QUESTION 1. Mark Scheme

Cambridge IGCSE – May/June 2015

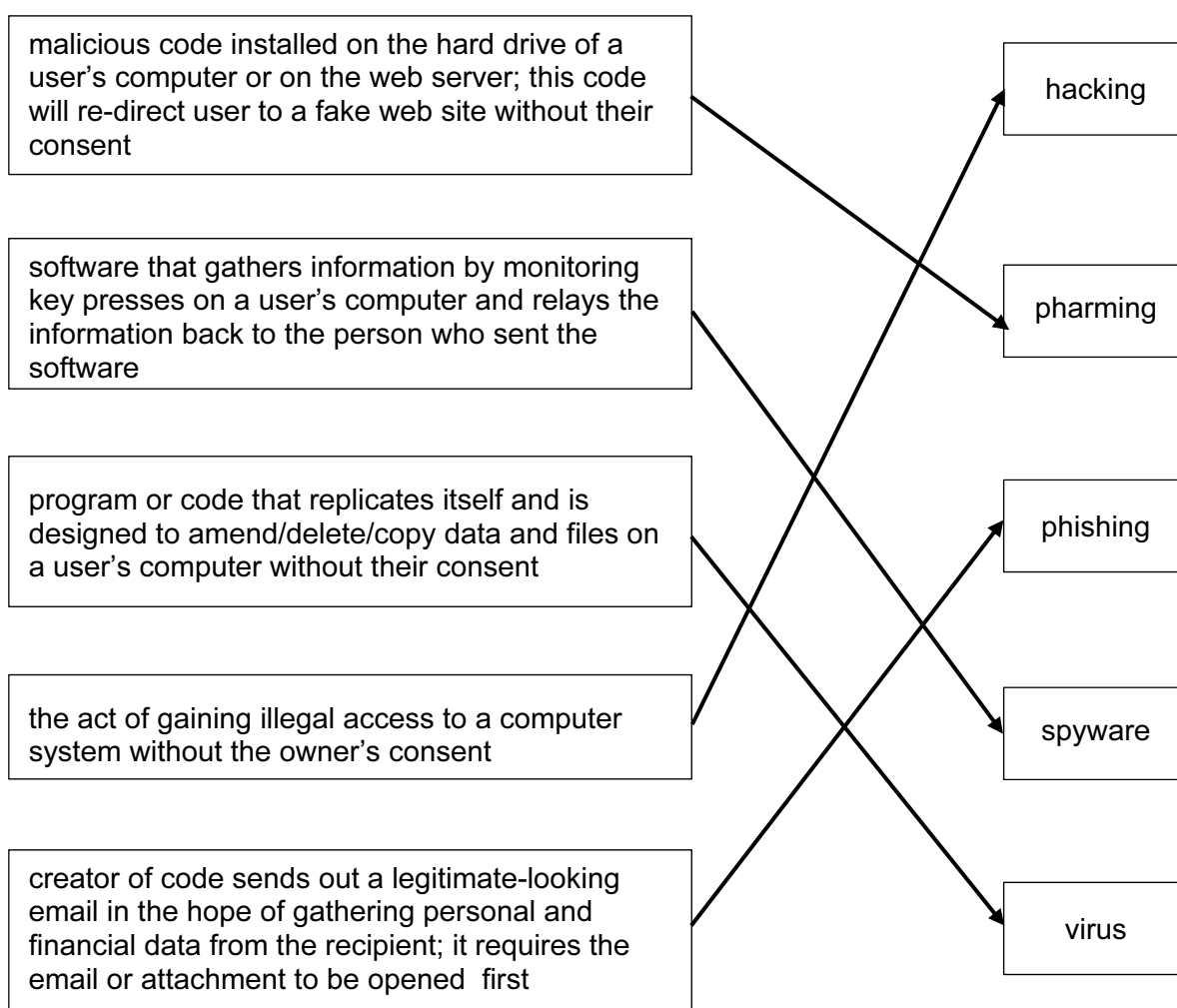


1 (a) 1 mark per correctly placed tick

Statement	True	False
they are a form of spyware		✓
they are used in advertising only		✓
they are used to track the browsing of a user	✓	
they act in the same way as a virus		✓

[4]

(b)



4/5 matches – 4 marks
 3 matches – 3 marks
 2 matches – 2 marks
 1 match – 1 mark

[4]



- 2 (i) Either of the three options, **resistive**, **capacitive** or **infra-red** must be chosen maximum of **two** marks from chosen technology:

resistive

- uses multiple layers of material ...
- ... that transmit electric currents
- when the top layer/screen is pushed/touched into the lower/bottom layer ...
- ... the electric current changes and location of “touch” is found

capacitive

- current sent/flows out from all 4 corners of the screen
- when finger/stylus touches screen, the current changes
- the location of “touch” is calculated

infra-red

- an “invisible” grid on the screen (pattern of infra-red LED beams)
- sensors detect where the screen has been touched through a break in an infrared beam(s)
- the position where the screen touched is calculated

[2]

- (ii) 1 mark for **benefit**, 1 mark for **drawback**

Resistive

benefits:

- inexpensive/cheap to manufacture
- can use stylus/finger/gloved finger/pen

drawbacks:

- poor visibility in sunlight
- vulnerable to scratching
- wears through time
- does not allow multi-touch facility

capacitive

benefits:

- good visibility in sunlight
- (very) durable surface
- allows multi-touch facility

drawbacks:

- screen (glass) will shatter/break/crack (on impact)
- cannot use when wearing (standard) gloves

infra-red

benefits:

- good durability
- allows multi-touch facility
- can use stylus/finger/gloved finger/pen

drawbacks:

- expensive to manufacture
- screen (glass) will shatter/break/crack (on impact)
- sensitive to dust/dirt

[2]

QUESTION 2.

Mark Scheme
Cambridge IGCSE – May/June 2016



8 (a) (i) Any **two** from:

- to protect against key logging software/spyware
- can stop key presses being recorded
- can stop key presses being relayed
- drop down boxes cannot be recorded as key presses
- drop down boxes can be placed in different location on the screen each time (to overcome screen capture issues)

[2]

(ii) Any **one** from:

- hacker never finds all characters on the first hack
- makes it more difficult for hackers to find the order of the characters
- hacker needs to hack the system several times to gain the whole password
- shoulder surfing will not give person full password

[1]

(b) Any **two** from:

- fingerprint scanner
- face recognition software
- retina scanner/iris scanner
- voice recognition software

[2]

9 (a) 1 mark for correct check digit and 1 mark for showing the calculation

$$(4 \times 1) + (2 \times 2) + (4 \times 3) + (1 \times 4) + (5 \times 5) + (0 \times 6) + (8 \times 7)$$

$$= 4 + 4 + 12 + 4 + 25 + 0 + 56 = 105$$

$$105/11 = 9 \text{ remainder } 6$$

check digit is: **6**

1 mark for any correct
line of working

[2]

(b) **incorrect** check digit

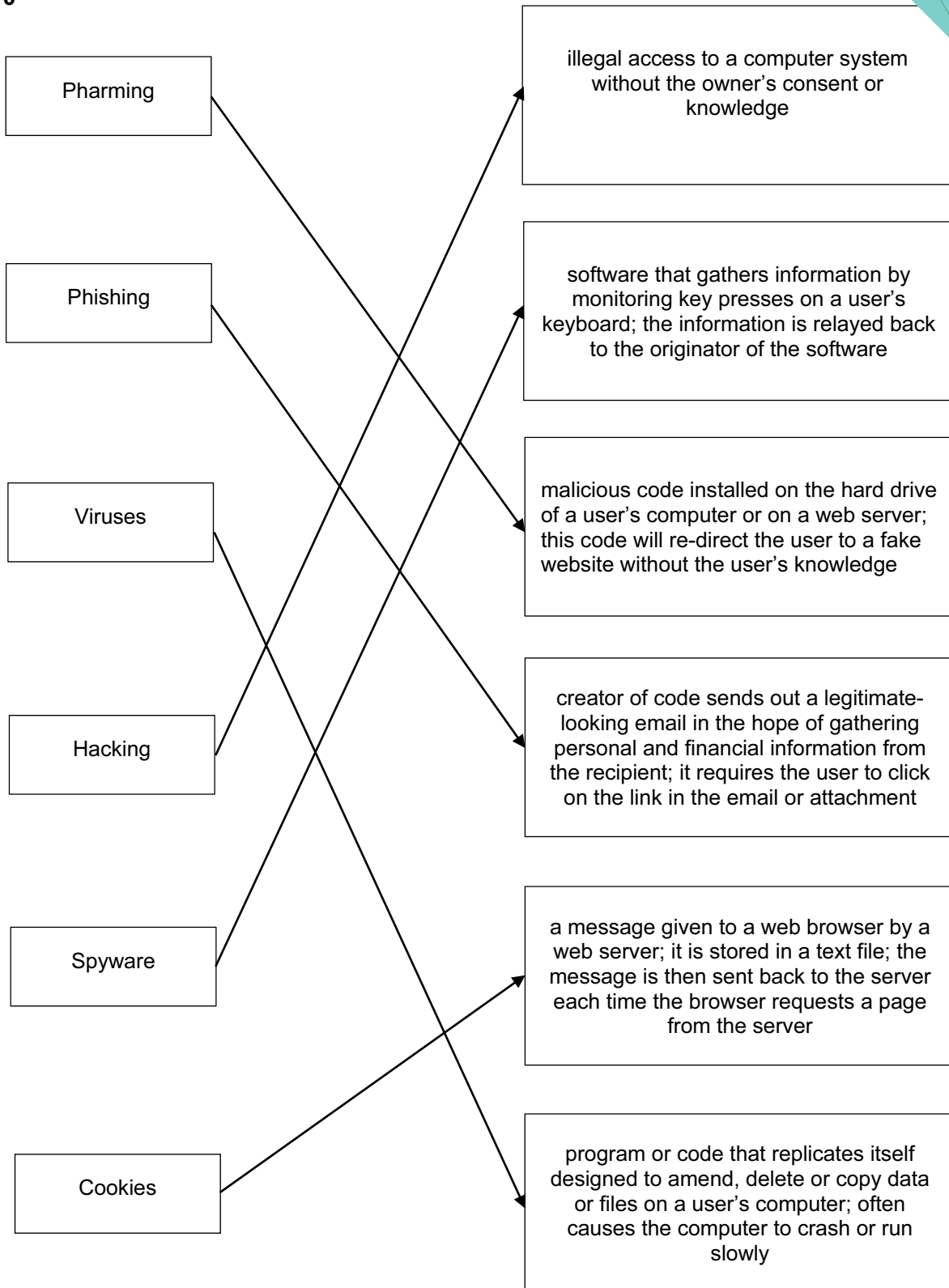
[1]

- check digit should be 1
- $(3 \times 1) + (2 \times 2) + (4 \times 3) + (0 \times 4) + (0 \times 5) + (4 \times 6) + (5 \times 7) // 3 + 4 + 12 + 0 + 0 + 24 + 35 //$
Total = 78
- 78/11 gives 7 remainder 1

[2]



10



5/6 matches – 5 marks
 4 matches – 4 marks
 3 matches – 3 marks
 2 matches – 2 marks
 1 match – 1 mark

QUESTION 3.

Mark Scheme

Cambridge IGCSE – October/November 2015



- 6 (a) Any **three** from:
- hypertext mark-up language
 - used to create/develop/author webpages
 - translated by a browser to display webpages
 - uses (opening and closing) tags to display/format content

- (b) **Structure:**
- instructs how the layout of the content is displayed

Presentation:

- instructs how the content will be formatted e.g. colour/style/CSS [2]

- (c) Any **three** from:
- displays web page
 - interprets/translate the HTML document
 - interprets/translate embedded scripting, for example JavaScript
 - provides functions, such as bookmarks and history
 - identifies protocols, such as https, SSL [3]

- 7 (a) (i) 1 mark for correct check digit and 1 mark for showing the calculation

$$(4 \times 1) + (2 \times 2) + (4 \times 3) + (1 \times 4) + (5 \times 5) + (0 \times 6) + (8 \times 7)$$

$$= 4 + 4 + 12 + 4 + 25 + 0 + 56 = 105$$

$$105/11 = 9 \text{ remainder } 6$$

check digit is: 6 [2]

- (ii) **1 mark**
- No/incorrect check digit

2 marks

- Total is 78
- $78/11 \dots$
- $\dots$ gives 7 remainder 1
- check digit should be 1 [3]



(b) (i) 1 mark for each correct parity bit

parity bit

0	1	1	0	0	1	1	0
---	---	---	---	---	---	---	---

parity bit

1	0	0	0	0	0	0	1
---	---	---	---	---	---	---	---

[2]

(ii) Any **one** from:

- an even number of digits are changed
- a transposition error(s) has occurred

[1]

8 1 mark for each step in correct order. (NOTE: Marks can be awarded for a correct sequence.)

Steps in the printing process	Step order
As the printing drum rotates, a laser scans across it; this removes the positive charge in certain areas	4
The printing drum is coated in positively-charged toner; this then sticks to the negatively-charged parts of the printing drum	6
The paper goes through a fuser which melts the toner so it fixes permanently to the paper	9
The printer driver ensures that the data is in a format that the laser printer can understand	(1)
A negatively-charged sheet of paper is then rolled over the printing drum	7
Data is then sent to the laser printer and stored temporarily in the printer buffer	2
The toner on the printing drum is now transferred to the paper to reproduce the required text and images	8
The printing drum is given a positive charge	3
Negatively-charged areas are then produced on the printing drum; these match exactly with the text and images to be printed	5

[8]

QUESTION 4. Mark Scheme

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(ii)

MAR	1	0	0	0	1	1	1	0
-----	---	---	---	---	---	---	---	---

MDR	0	1	1	1	1	0	0	1
-----	---	---	---	---	---	---	---	---

[2]

(iii)

Address	Contents
1000 0000	0110 1110
1000 0001	0101 0001
1000 0010	1000 1101
1000 0011	1000 1100
1000 1100	
1000 1101	
1000 1110	0111 1001
1000 1111	

[1]

- (b) – CIR (Current Instruction Register)
 – PC (Program Counter)
 – Acc (Accumulator)

[3]

- (c) – Controls operation of memory, processor and input/output
 – Instructions are interpreted
 – Sends signals to other components telling them “what to do”

[3]

- 4 (a) (i) Free software / open source software

[1]

(ii) Any **three** from:

- Set of principles / laws that regulate the use of computers
- Covers intellectual property rights (e.g. copying of software)
- Privacy issues (e.g. accessing personal information)
- Impact of computers on society (relevant examples can be credited)

[3]



(b) 1 mark for each CORRECT row

Statement	Firewall	Proxy server
Speeds up access of information from a web server by using a cache		✓
Filters all Internet traffic coming into and out from a user's computer, intranet or private network	✓	✓
Helps to prevent malware, including viruses, from entering a user's computer	✓	
Keeps a list of undesirable websites and IP addresses	✓	✓

[4]

(c) **one** mark for method + **one** mark for linked reason (maximum 6 marks)

- back up files...
- ...on a regular basis/to another device/to the cloud
- set data to read only...
- ...to prevent accidental editing
- save data on a regular basis...
- ...to prevent loss/corruption of data in unexpected shutdown/failure
- use correct shut down/start up procedures...
- ...to prevent damage to components/stored files
- use correct procedures before disconnecting portable storage device...
- ...to prevent damage to device/data corruption
- keep storage devices in a safe place...
- ...away from fire hazards

[6]

- 5 (a) – Memory card/SSD/HDD/magnetic tape
– Suitable description of device given

[2]

- (b) 2 hours = 120 minutes
 $120 \times 180 = 21\,600$
 $21\,600 / 1024$ (or $21\,600 / 1000$)
= **21.1 GB (or 21.6 GB)**

(1 mark for correct answer and 1 mark for correct calculation)

[2]

- 6 Any **two** from:
- facial recognition software/biometric software used to scan face
 - face image converted to digital format/data by the camera
 - digital image formed from scanned photo/biometric data stored in passport
 - key features of the face are checked/compared

[2]