

Answer ALL questions.

Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Camille has two children.

Camille uses ICT to organise her family life and her children use ICT for school.



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1 Camille creates a home network.

(a) (i) State what is meant by 'tethering'.

(1)

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(ii) Which **one** of these is a reason for using a network?

(1)

- A** To licence software as open source
- B** To prevent latency
- C** To provide flexible access
- D** To reduce hardware costs

(b) Camille connects to a LAN.

(i) State **two** features of a LAN that are different from a WAN.

(2)

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(ii) Describe the role of a wireless access point.

(2)

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(iii) Which **one** of these is a hardware device that directs traffic between a LAN and a WAN?

(1)

- A** Booster
- B** Gateway
- C** Hub
- D** Server

(c) Give **two** benefits to Camille's employer of her working from home.

(2)

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(d) Camille's mobile phone can receive data using 3G, 4G, 5G and GPS.

State **two other** wireless communication methods used by mobile phones.

(2)

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(e) Camille uses wired and wireless connectivity.

(i) Draw **one** straight line from **each** connection method to the correct characteristic.

(3)

Connection method

Characteristic

3G ●

GPS ●

Wired ●

● Requires a SIM

● Longest range

● Only used in a LAN

● Least affected by interference

(ii) State what is meant by 'latency'.

(1)

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(f) Describe the function of a VPN.

(2)

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(g) Camille uses anti-malware to secure her data online.

Describe **two** types of malware.

(4)

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(h) Explain why Camille would use a filter in her network.

(2)

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(Total for Question 1 = 23 marks)



2 Camille uses digital devices for work.

(a) A distance sensor is used as an input for an embedded system in a car.

(i) Describe how a distance sensor is used by an embedded system in a car. (2)

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(ii) Which **one** of these is another example of an input for a device? (1)

- A LED
- B Monitor
- C Scanner
- D Speaker

(b) State the number of instructions that can be executed every second by a 3.2MHz processor. (1)

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(c) GPS can be used to monitor people's movements.
State **one other** way of monitoring people's movements. (1)

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(d) Camille's laptop uses secondary storage.

(i) Which **one** of these is a feature of a hard disk that allows data to be read? (1)

- A** It allows electrons to be stored
- B** It is reflective
- C** It is magnetically charged
- D** It connects directly to the network

(ii) Here is a diagram that shows secondary storage.

Four files (A, B, C and D) are stored on it. Each file is made up of several blocks (1, 2, 3, etc.)



Complete the diagram to show the state of the storage after running a defragmentation utility.

(2)



(iii) State **one** type of storage media that stores data as electrical charges. (1)

(iv) Which **one** of these is the largest amount of data? (1)

- A** 0.010 GiB
- B** 0.100 TiB
- C** 0.001 MiB
- D** 1.000 KiB

(v) State **two** characteristics of hard disk drives that make them more suitable for use with servers than magnetic tape.

(2)

1

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(vi) Which **one** of these is a reason for using local storage rather than online storage?

(1)

- A** Data stored locally is harder to intercept
- B** Local storage media cannot be encrypted
- C** Online storage cannot be backed up automatically
- D** Online storage is always compressed

(e) Which **one** of these is processed by the CPU?

(1)

- A** Connectivity
- B** Embedded systems
- C** Hardware
- D** Malware

(f) Camille's laptop uses memory.

(i) Which **one** of these statements is true?

(1)

- A** ROM is never used in laptops
- B** ROM always stores more instructions than RAM
- C** ROM contains values that can be changed by applications
- D** ROM is used to store startup files

(ii) Give **one** drawback of increasing the size of random access memory.

(1)

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(g) Which **one** of these is a function of an operating system?

(1)

- A** Convergence
- B** Media access control
- C** Memory management
- D** Office productivity

(Total for Question 2 = 17 marks)



3 Camille shares family photographs online with friends.

(a) Give **two** benefits to Camille’s friends of Camille using an online community to share photographs. (2)

1

2

(b) Which **one** of these provides content to client computers? (1)

- A ISP
- B LAN
- C Router
- D Server

(c) Describe how transactional data can be used with photographs stored online to improve the experience of users. (2)

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(d) Explain **one** reason why Camille should use hosted software to edit her photographs rather than local software. (2)

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(e) Which **one** of these is a reason to use an avatar?

(1)

- A** Adds security
- B** Enhances accessibility
- C** Improves privacy
- D** Prevents social interaction

(f) Camille connects to a wireless access point to upload her photographs.

(i) Explain **one** reason why moving closer to the wireless access point reduces transfer time.

(2)

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(ii) Explain **one** effect that compressing the data would have on data transfer.

(2)

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(g) Explain **one** reason why a website should provide accessibility features.

(2)

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(h) Camille buys extra online storage.

(i) State **two** protocols that could be used to secure online payments.

(2)

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(ii) State how encryption prevents data from being understood.

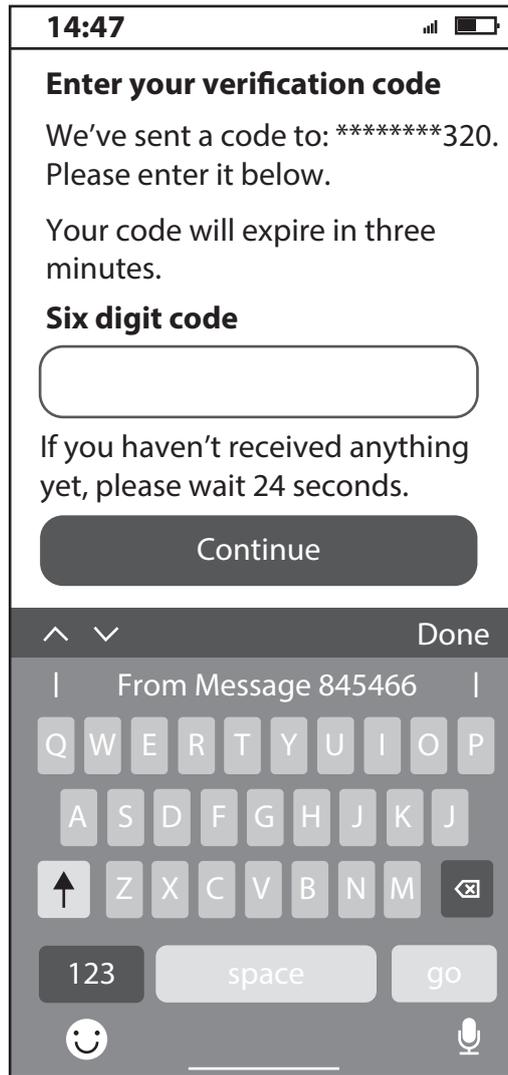
(1)

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- (iii) After Camille enters her password correctly, she receives this text message from her bank.



Explain why this message helps keep Camille's payments secure.

(2)

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(Total for Question 3 = 19 marks)



4 Camille’s child, Sarah, uses websites and video sharing sites for her school work.

(a) State **one** way of reducing the environmental impact of the use of servers that host online services.

(1)

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(b) Sarah participates in an online meeting as part of a lesson.

(i) State **two** peripheral output devices Sarah requires to participate in the online meeting.

(2)

1
2

(ii) Sarah uses wired connectivity. Her video is not synchronised with video from other participants.

Which **one** of these would cause this issue?

(1)

- A Higher bandwidth
- B Higher latency
- C Less interference
- D Using wired connectivity

(c) Explain **one** drawback to learning of enabling the comments section of an online video content service.

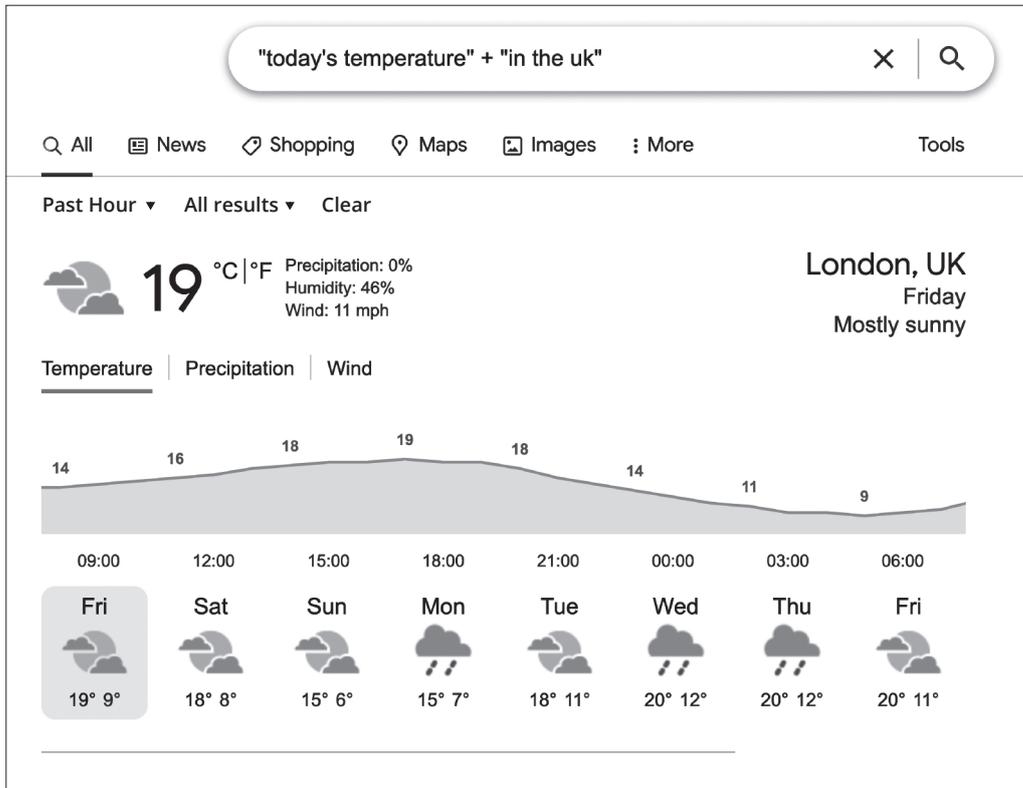
(2)

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(d) Sarah is researching changes in global temperatures.

Here is an image of her use of a search engine.



(i) Explain **one** way the search can be improved.

(2)

(ii) Describe how **one** peripheral device can support users of the search engine who have accessibility needs.

(2)



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(e) Sarah's sister plays games with friends online.

Describe **one** key feature of online gaming that develops social skills.

(2)

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(f) Discuss the reliability of information from online sources.

(8)

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(Total for Question 4 = 20 marks)



5 Camille designs controllers for a games console.

(a) Controllers are input devices.

State **two other** peripheral input devices for a games console.

(2)

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(b) Defragmentation is a type of utility software.

State **two other** types of utility software.

(2)

1

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(c) State the device that forwards packets of data in a wide area network.

(1)

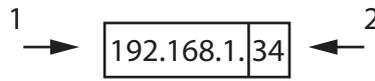
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(d) Here is an Internet Protocol (IP) address.

State what the labelled parts of this address are used for.

(2)



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(e) Explain **one** way of staying safe online.

(2)

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(f) Camille works remotely as part of a team.

Explain **two** negative impacts the use of the Internet has on the team's working practices.

(4)

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(g) Camille is writing an article for a website.

Discuss how ICT makes it easier to plagiarise and the impact of plagiarism on others.

(8)

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(Total for Question 5 = 21 marks)

TOTAL FOR PAPER = 100 MARKS



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