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Please check the examination details below before entering your candidate infor on

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE (9–1)

Monday 15 May 2023

Afternoon (Time: 1 hour 30 minutes) | Paper reference **4IT1/01R**

Information and Communication Technology (ICT)

PAPER 1: Written Paper

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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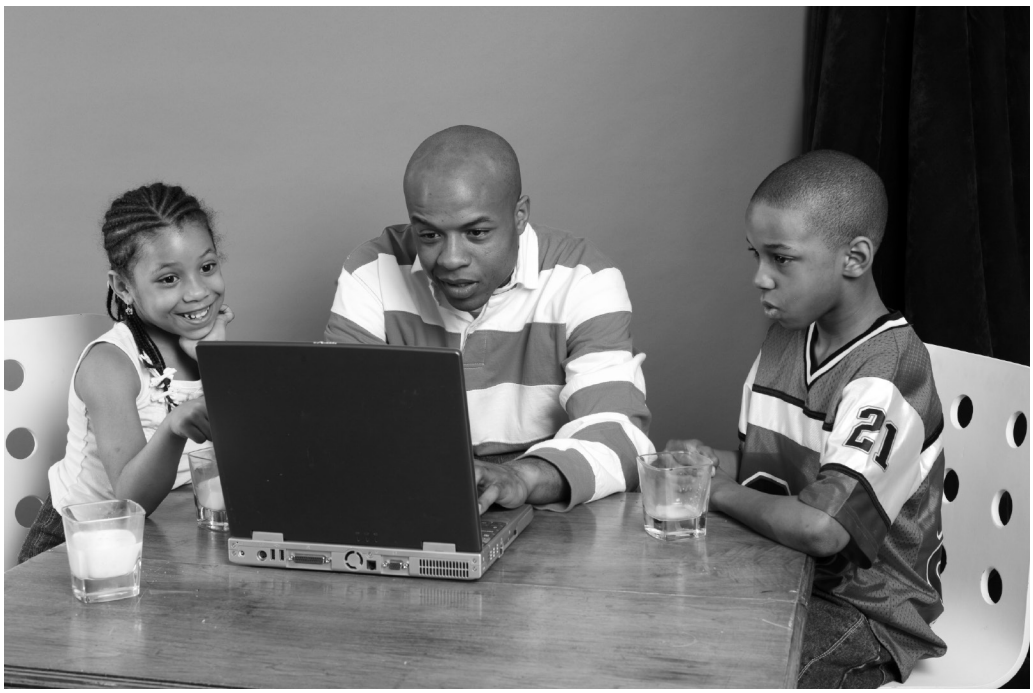
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Answer ALL questions. Write your answers in the spaces provided.

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

Asher has two children.

Asher uses ICT to organise his family life and his children use ICT for school.



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1 Asher creates a home network.

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

(1)

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

(1)

- ☒ **A** To improve file encryption
- ☒ **B** To protect from hackers
- ☒ **C** To reduce the need for software updates
- ☒ **D** To share peripherals

(b) Asher connects to a WAN.

(i) Explain **one** reason why he uses a WAN rather than a LAN.

(2)

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(ii) Describe the role of a router.

(2)

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(c) Which **one** of these provides clients with access to data?

(1)

- ☒ **A** Booster
- ☒ **B** Gateway
- ☒ **C** Server
- ☒ **D** Wireless access point

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(d) Describe how a network filter works.

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(e) Asher's mobile phone can transmit data using Bluetooth and Wi-Fi.

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

(2)

1 .....

2 .....

(f) Asher uses wired and wireless connectivity.

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

(2)

Connection method	**Characteristic**
Wired	Least affected by interference
Bluetooth	Shortest range
	Only used in a WAN

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

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(g) Asher uses encryption, passwords and anti-malware to secure his data.

(i) State **two** examples of anti-malware.

(2)

1 .....

2 .....

(ii) Describe **two other** methods Asher could use to secure his data.

(4)

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(h) Give **two** drawbacks to Asher's **employer** of him working from home.

(2)

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(Total for Question 1 = 22 marks)

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2 Asher uses digital devices in his home.

(a) State what is meant by an 'embedded system'.

(1)

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(b) Describe the role of a microprocessor in an embedded system.

(2)

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(c) State the number of instructions that can be executed every second by a 2.2GHz processor.

(1)

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(d) CCTV can be used to monitor people's movements.

State **one** reason why CCTV may not be reliable for this.

(1)

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(e) Asher's laptop uses secondary storage.

(i) Which **one** of these is a feature of an optical 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 to the hard disk

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

Three files (A, B, and C) are stored on it. Each file is made up of several blocks (1, 2, 3, 4, etc.)

			A2	A1	C1		B1		A3	C2	C3		A4	B2	

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

(2)

(iii) State the type of storage media that requires defragmentation.

(1)

.....

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

(1)

- ☒ **A** 0.001 GiB
- ☒ **B** 1000 KiB
- ☒ **C** 1 MiB
- ☒ **D** 10 TiB

(v) Solid state drives are smaller and lighter than hard disk drives.

State **two other** characteristics of solid state drives that make them suitable for use with portable devices.

(2)

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2 .....

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

- ☒ **A** All online data storage plans are free
- ☒ **B** Files can be uploaded from multiple devices
- ☒ **C** It is always quicker to download files than transfer them locally
- ☒ **D** There is no impact on the environment

(f) Which **one** of these stores data and instructions for use by the CPU?

(1)

- ☒ **A** Application software
- ☒ **B** Main memory
- ☒ **C** Operating system
- ☒ **D** Packet header

(g) Asher's laptop uses memory.

(i) Which **one** of these is the reason why ROM is used rather than RAM to store startup files in a computer?

(1)

- ☒ **A** More instructions can be stored
- ☒ **B** The instructions are not very complicated
- ☒ **C** There is no need for the instructions to change
- ☒ **D** RAM only stores data

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

(1)

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(h) Which **one** of these makes it possible for a user to enter data using a mouse?

(1)

- ☒ **A** Media access control
- ☒ **B** Operating system
- ☒ **C** Output device
- ☒ **D** Utility software

(Total for Question 2 = 17 marks)

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3 Asher shares family photographs online with friends.

(a) State **two** types of online community that Asher could use for this.

(2)

1 .....

2 .....

(b) Which **one** of these is a way to improve Asher's privacy?

(1)

- ☒ **A** Add friends
- ☒ **B** Remove encryption
- ☒ **C** Use an avatar
- ☒ **D** Use HTTPS to access the site

(c) State **two** uses of a VPN.

(2)

1 .....

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2 .....

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(d) Describe how Asher could use features of a smartphone to allow online friends to see where his photographs were taken when they are uploaded.

(2)

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(e) Explain **one** reason why Asher should use local software to edit the photograp rather than hosted software.

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(f) Asher notices that the upload speed reduces when he uses his microwave at the same time.

(i) Explain **one** reason why this happens.

(2)

(ii) Describe **one** way Asher could use utility software to improve the upload speed of the photographs.

(2)

(g) Asher chooses to email a photograph to twenty friends.

One drawback of this is the length of time it takes.

Explain **one other** drawback.

(2)

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(h) Asher buys extra online storage.

(i) State **two** types of online payment systems Asher could use.

(2)

1 .....

2 .....

(ii) Which **one** of these protocols should Asher use when making online payments?

(1)

☒ **A** FTP

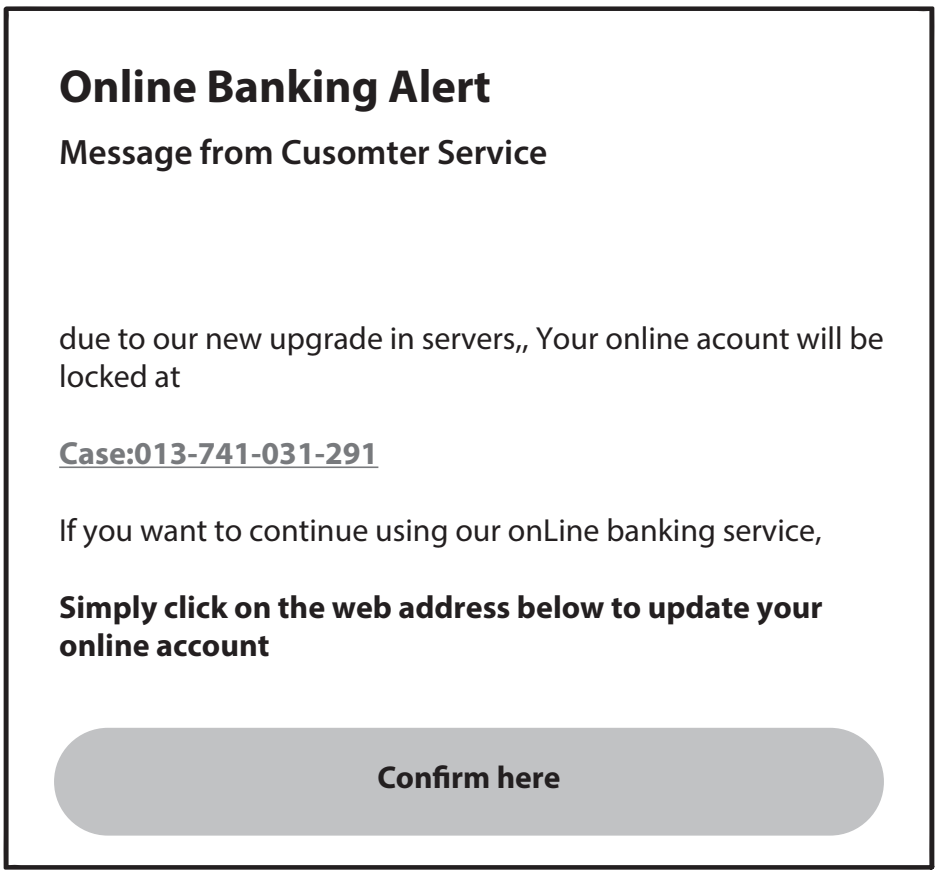
☒ **B** HTTP

☒ **C** NFC

☒ **D** WEP

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(iii) Asher receives this notification email.



Online Banking Alert

Message from Cusomter Service

due to our new upgrade in servers,, Your online acount will be locked at

Case:013-741-031-291

If you want to continue using our onLine banking service,

Simply click on the web address below to update your online account

Confirm here

Explain the risk presented by this email.

(2)

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(Total for Question 3 = 20 marks)

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4 Asher's child, Ella, uses websites and video sharing sites for her school work.

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

A mouse and keyboard, or touch screen are often used.

(i) State **two other** peripheral input devices Ella requires to participate in the online meeting.

(2)

1 .....

2 .....

(ii) Ella is using wired connectivity. Her video is not synchronised with video from other students.

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

(1)

- ☒ **A** Increase latency
- ☒ **B** Reduce bandwidth
- ☒ **C** Reduce interference
- ☒ **D** Use a wireless connection

(b) Ella can watch the videos at any time and from anywhere.

Explain **one other** benefit to students when learning from videos online.

(2)

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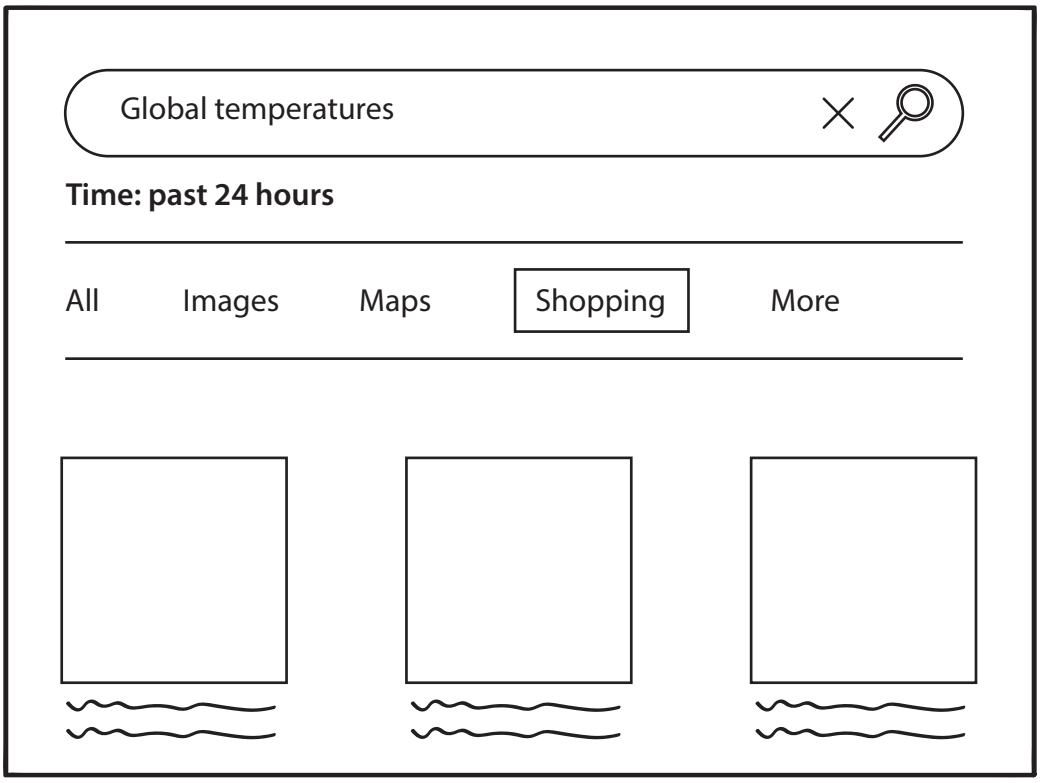
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(c) Ella is researching recent temperatures in Australia.

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



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

(2)

(ii) The search results change when Ella signs in to her search engine account.

Explain why this happens.

(2)

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(d) State **one** type of online service used by a school.

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(e) Describe how the increased use of online services affects the environment.

(2)

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(f) Discuss the impact of the digital divide on education.

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(Total for Question 4 = 20 marks)

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5 Asher designs controllers for a games console.

(a) State **two** peripheral output devices for a games console.

(2)

1 .....

2 .....

(b) State **two** software licensing types.

(2)

1 .....

2 .....

(c) Here is a media access control (MAC) address.

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

(2)



1 .....

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(d) State **one** reason why data is encrypted before being transferred across a network.

(1)

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(e) Asher works online as part of a team.

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

(4)

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(ii) Explain **one** online safety risk to Asher.

(2)

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(f) Asher posts videos about computer games on a video sharing site.

Justify his decision to use the video sharing site.

(8)

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(Total for Question 5 = 21 marks)

TOTAL FOR PAPER = 100 MARKS

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