



**Cambridge Assessment  
International Education**

Example Responses – Paper 1

**Cambridge IGCSE™ / IGCSE (9–1)  
Information and Communication  
Technology 0417 / 0983**

For examination from 2023



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## Introduction

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The main aim of this booklet is to exemplify standards for those teaching Cambridge IGCSE / IGCSE (9-1) Information and Communication Technology 0417 / 0983.

This booklet contains responses to all questions from June 2023 Paper 11, which have been written by a Cambridge examiner. Responses are accompanied by a brief commentary highlighting common errors and misconceptions where they are relevant.

The question papers and mark schemes are available to download from the [School Support Hub](#)

**0417 / 0983 June 2023 Question Paper 11**

**0417 / 0983 June 2023 Mark Scheme 11**

Past exam resources and other teaching and learning resources are available from the [School Support Hub](#)

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## Question 1

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1 A book has an ISBN which is 330247204X

Tick (✓) the most appropriate data type for the ISBN.

A Numeric: integer

B Text

C Boolean

D Date

[1]

### Examiner comment

- Most candidates chose 'text' as their answer.
- The ISBN has an 'X' at the end, so numeric answers were not correct. Only text was correct.
- Some candidates chose 'numeric integer'. They may have done this because they only saw ISBN as numbers, even though there was an 'X' at the end.
- It was important for candidates to read the question carefully.

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## Question 2

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2 Identify the hardware from the descriptions given.

(a) A volatile internal memory that stores the current instruction.

*Random Access Memory*..... [1]

### Examiner comment

- 'RAM' was an acceptable alternative answer.
- Candidates needed to be careful of their writing, because 'RAM' could be mistaken for 'ROM' if handwriting was untidy. Candidates could have written their answer out in full or used capital letters to help avoid this.

(b) A printed circuit board containing the CPU and other components of a computer.

*motherboard*..... [1]

### Examiner comment

- Many candidates gave the correct answer.
- Some candidates gave 'CPU / processor' or 'circuit board', but both were given in the question.

(c) A printed circuit board that controls the output to a monitor.

*graphics card*..... [1]

### Examiner comment

- 'Video card' or 'graphic processing unit' were also acceptable alternative answers.
- Some candidates gave 'printed circuit board' which was correct, but not detailed enough and was given in the question.
- The question stated that it was a printed circuit board that controlled the output to a monitor, but some candidates misinterpreted this as a remote control.

(d) A printed circuit board that is installed in a computer so that the computer can be connected to a network.

*Network Interface Card*..... [1]

### Examiner comment

- 'NIC' or 'network card' were also acceptable alternative answers.
- The question stated that it was a printed circuit board that connected the computer to the network, so the answer needed to be a board or a card, and therefore a network card.
- This question was not well answered, and some candidates guessed 'LAN cable' and 'Intranet card'.

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## Question 3

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- 3 A headteacher is setting up a newsletter to send to parents of pupils at a school. She has some photographs saved on storage devices that she needs to place in the newsletter.

State **two** communication methods which the headteacher could use to upload the photographs onto the school network.

1 *cable* .....

2 *wi-fi* .....

[2]

### Examiner comment

- This question was well answered. An alternative answer was 'Bluetooth' and 'email'.
- This was a 'state' question, so one-word answers were allowed.
- The question asked about uploading a photograph, so the answers had to be electronic.

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## Question 4

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4 (a) Describe the purpose of a web browser.

*Retrieves code from the server and interprets it as a web page. The web page is then displayed.*

[2]

### Examiner comment

- This was a technical question and was not well answered. Candidates either seemed to know the technical answer or they did not.
- ‘Runs the code’ and ‘runs client-side scripts’ were acceptable alternative answers.
- Some candidates stated that it displayed the web page or runs the HTML, and these answers were allowed.
- Some candidates mixed up ‘web browser’ with ‘search engine’ and then gave answers relating to searching for information on the web. This was a popular incorrect answer.

(b) A company may use an intranet or an extranet.

Describe the differences between an intranet and an extranet.

*Intranet is a private network that is owned by a company that is accessible to internal workers whereas extranet is a private network that is accessible to internal staff and customers or suppliers. Data in an intranet is only shared within the organisation whereas data in an extranet is shared with customers as well.*

[2]

### Examiner comment

- The answer given above exceeds the marking total, which was allowed but only the maximum 2 marks were given.
- Some candidates stated that both an intranet and an extranet share data, but an intranet only shares within the company while an extranet shares data with customers or suppliers. Candidates needed to give detailed answers or an explanation / reason.
- Where candidates stated that ‘the intranet is shared by a single organisation’, this answer was allowed as the implication was that the extranet is not just shared by one organisation.
- ‘Access to different people’ was related to communication with different types of people.
- This question asked for candidates to state some differences. Sometimes their answers needed to relate to both intranet and extranet, whereas sometimes the implication alone was allowed, for example ‘intranet is more secure’.
- Some candidates expanded intranet with a meaning, e.g. internal restricted access network, but as an extranet is also restricted there was no difference given.
- Some candidates wrote that one was internal and one was external, but did not expand on these descriptions. They stated that internal meant that it was within an organisation, whereas external meant that it allowed other users such as customers.



- Candidates needed to read the question carefully. Some candidates mixed up intranet with internet.
- Other candidates stated that the intranet was a private network, but then went on to state that the extranet was public. The intranet is a private network, but so is the extranet.
- Some answers required more explanation, for example ‘the intranet is a small network and the extranet is over a larger area’. This could have been expanded to include customers who would have been outside of the company, because it wasn’t clear whether the candidate was talking about the number of people using it or the size of the network.

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## Question 5

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5 State the safety issue that is most likely to occur for each of these causes.

(a) Spilling drinks on computer equipment

*electrocution*..... [1]

### Examiner comment

- Only one answer was correct for this question.
- Some candidates stated that spilling drinks could cause a fire to start.

(b) Overloading sockets by plugging in too many devices

*electrical fire*..... [1]

### Examiner comment

Most candidates gave the correct answer. They could also have just stated 'fire'.

(c) Trailing cables across the floor

*trip hazard*..... [1]

### Examiner comment

- Most candidates gave the correct answer.
- Some candidates stated that trailing cables would drag equipment off the table, but this was more likely to rip out the cables so was not allowed.

(d) Placing a laser printer at the edge of a table

*injury caused by the object falling on someone*.....

### Examiner comment

Equipment falling and breaking alone was not the correct answer to this question as the answer had to relate to injuring someone.

## Question 6

6 A student has set up a password for his laptop computer. The password he has chosen is Px2zY!Cg3?bd

(a) Discuss the benefits and drawbacks of using this password.

*This password is a strong password which makes it hard to crack. A system protected by a strong password is more secure as it reduces shoulder surfing. The more complex a password is, the harder it is to remember and it may have to be written down to remember it therefore reducing the security. Even though a password is strong a computer could crack it within seconds.*

[6]

### Examiner comment

- This was a 'discuss' question, so to be awarded full marks candidates needed to give both benefits and drawbacks. Candidates did not need to make comparisons with other systems.
- The example answer gave both benefits and drawbacks: The benefits included a strong password, hard to crack, more secure. The drawbacks included that it was hard to remember, it had to be written down therefore reducing security, and that a computer could crack it.
- Even though this was a discuss question, candidates did not need to give a conclusion.
- Some candidates gave a description of a strong password.
- Many answers related to the password being hacked and data being stolen, but the question was about using the password rather than what could happen if the password was cracked.
- Other popular answers related to the time it would take to enter the password which again was very vague as no explanation was given. Candidates could have expanded this in many ways, to mistyping and therefore locking the user out, or forgetting the password.
- Some answers tended to be vague, for example that a computer could 'find' the password' rather than 'crack' it.
- Some candidates did not give enough answers, but the ones they gave were correct. Candidates should look at the number of marks available and allow 1 marking point per mark.

- (b) The student could have protected his laptop computer by using two-factor authentication. This could have combined his password with a biometric method.

State **two** examples of biometric methods he could use.

1 *retina scan*.....

2 *fingerprint*.....

[2]

### Examiner comment

- This question was well answered and candidates gave many correct answers.
- The popular incorrect answers were ‘finger’ rather than ‘fingerprint’.

## Question 7

7 A systems analyst has been asked to carry out an analysis of a company’s current computer system.

(a) State **three** methods of analysing the current system.

- 1 *observation*.....
- 2 *interview*.....
- 3 *questionnaire*.....

[3]

### Examiner comment

- This was a straightforward recall question.
- Many candidates seemed to offer guesses for their answer, such as ‘security’, ‘checking the memory’ and ‘scanning’.

(b) The systems analyst is working with a team to create some new software. The software documentation will be stored on the cloud.

Describe how the team can use the cloud to share the documentation.

*The documentation is uploaded to the cloud and saved. Access is then given to each member of the team. The members of the team log into the cloud and open the documentation. They then work on the document before saving it back to the cloud.*

[4]

### Examiner comment

- This seemed to be a difficult question for many candidates.
- A popular answer was that the documentation would be shared, but this was given in the question. Candidates needed to read the question fully before beginning their answer.
- The question asked about how it could be carried out, but the candidates gave general answers about editing the documentation.
- Candidates showed a different understanding of the cloud. They saved on their smartphones to the cloud as though it was simply another storage device. However, everyone can have access to the cloud, so if a file is placed on it this can be shared with others who have access. Data can then be stored back to the cloud.

- (c) Members of the team can use video-conferencing to join business meetings from different locations around the world.

Describe, giving reasons, **three** disadvantages of using video-conferencing for business meetings rather than meeting in person.

*It is more difficult to carry out projects as people are working on their own and not able to discuss problems with colleagues. It requires a reliable internet connection and specialist hardware which could be expensive to purchase. Time zone differences could cause issues as staff work in other parts of the world.*

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.....

[6]

### Examiner comment

- Some candidates gave vague answers such as ‘bad connection’ or the ‘network may fail’ without explaining why this would be an issue. If you are attending a video conference then the internet connection must be available at all times, so a bad connection could disrupt the meeting. The bandwidth was also high as video takes up a great deal of it.
- Popular general answers like ‘easily’ distracted did not relate back to the scenario. This would be more likely with students attending a video conference rather, than a business meeting. The answers needed to refer back to the scenario.
- Some candidates wrote down trade names and were not awarded marks for these.
- Some candidates did not give enough answers, but the ones they gave were correct. Candidates should notice that 6 marks were available for this question, so should have given 6 marking points in their answer.
- Many candidates stated that the system could be hacked, but this did not answer the question which asked about the disadvantages of not meeting in person and a face-to-face meeting could be overheard.
- Some candidates simply stated that people might not have the ‘proper device’ rather than stating that specialised hardware was needed. To be awarded the mark, they needed to refer to specialist hardware like cameras and microphones.

## Question 8

- 8 (a) Compare Optical Mark Readers (OMRs) with Optical Character Readers (OCRs). Your answer must include similarities and differences.

*Both are direct data input devices that scan data from printed documents. An OCR is more accurate at reading as it reads typed text and handwritten characters whereas an OMR only reads marks on the paper.*

[6]

### Examiner comment

- This was a difficult question as candidates struggled to answer it without referring to marks and characters that were in the question, so they gave more similarities than differences in their answers.
- Candidates struggled to write about the differences, but to be awarded full marks in this question both similarities and differences were required.
- Many candidates wrote about checking the data but did not expand on this.

- (b) Identify **two** uses of Optical Mark Recognition (OMR).

- 1 *multiple choice forms*
- 2 *bar codes*

[2]

### Examiner comment

- Candidates gave a lot of answers for this question and it was well answered.
- Common incorrect answers were security, both in an exam and in passwords. Expansions on the first two points here could have been awarded a mark
- General answers like 'to read the information' were too vague.
- Some candidates stated 'exams' or 'checking exams' without expanding to multiple choice examinations.

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## Question 9

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9 (a) Absolute and relative file paths are used in the content layer when creating a web page.

(i) Explain the differences between an absolute file path and a relative file path.

*absolute file paths contain a complete file path with file name  
whereas relative file paths only include a specific file*

.....  
..... [2]

### Examiner comment

- This was a difficult technical question and only a few candidates answered it.
- Candidates stated that the absolute file path created a new file rather than stating that it was the full path to find the file.
- Some candidates wrote that absolute file paths were fixed and would not have any changes, which they mixed up with absolute file referencing.
- Some candidates stated that absolute file paths had more data shown, but did not expand on this to state that it had a complete file path.
- Some candidates tried to explain that they could be used with hyperlinks, which was part of the next question.

(ii) Explain why absolute file paths should **not** be used for hyperlinks to locally-saved web pages.

*if the web pages have moved then the references refer to a  
previous file path*

..... [1]

### Examiner comment

- Some candidates stated that the hyperlink would not work. This was a little vague, but it was allowed because it was technically correct.
- Some candidates stated that it may cause some information to be inaccurate or there could be errors in finding the file, but did not expand on this to give reasons why this might happen.
- Many candidates did not answer the question and left it blank.



(b) Anchors and hyperlinks are both used in HTML.

Compare an anchor with a hyperlink. Your answer must include similarities and differences.

*An anchor and a hyperlink are both links in a web page that are attached to text or images. They are used to navigate to another part of the web page or website. The anchor allows the user to move to another part of the web page whereas the hyperlink links to another page on the website or another website. An anchor is part of a hyperlink.*

[4]

**Examiner comment**

- Some candidates thought the hyperlink and the anchor were files.
- Many candidates gave vague answers like ‘a hyperlink is something’, rather than stating that it is a link.
- Vague answers like ‘a hyperlink takes you to another place’ were common. Instead, candidates could have stated that hyperlinks take you to another web page, for example.

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## Question 10

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10 Some people use dialogue-based user interfaces to operate their car audio system.

(a) Describe what is meant by a dialogue-based user interface.

*Dialogue based interfaces use voice to carry out actions on a device.*

*They are a hands-free system.*

.....

..... [2]

### Examiner comment

Candidates understood that a dialogue-based user interface related to the voice, but missed out the interaction or the fact that the voice could control the device.

(b) Describe the benefits and drawbacks of using a dialogue-based user interface in this way.

*As the system is hands free it makes it safer than using a standard*

*interface. It can be affected by background noise. The user needs to*

*train the system to react to an accent or his way of talking.*

.....

..... [4]

### Examiner comment

- Some candidates wrote that the system may activate while driving, but did not go on to give the reasons why this may happen. For example, someone talking could give the key word and this would activate the device, then it would have to be turned off so distracting the driver.
- Some candidates stated that if a user was listening to the radio, this could stop the voice being heard. This was nearly correct, but candidates needed to give more detail such as ‘the sound was too loud for the voice activation to hear’.
- Some candidates stated that the interface or the microphone had to be of good quality, but this was not relevant to the question.
- Some candidates stated that giving instructions could bother other people in the car, when they should have stated that other people in the car could affect the input into the system.
- General answers like ‘it is easier to use’ and ‘it takes longer to enter data’ did not give enough of an explanation. Candidates could have added that talking made it easier to use, rather than typing in. It does not take long to input the sound, but the command has to be exact and some systems have to learn the commands and the ways of speaking.

## Question 11

11 Portable hard drives can be Solid State Drives (SSDs) or Hard Disk Drives (HDDs).

Explain why the SSD may be better to use than the HDD.

*The SSD is more robust than the HDD. As the SSD uses solid state technology the time it takes to find a file is smaller. Once the file is found the time it takes to transfer the data is quicker. The SSD uses less energy than an HDD and therefore generates less heat.*

.....  
 .....  
 .....  
 .....

[4]

### Examiner comment

- Many candidates stated that the SSD was cheaper than the HDD, but this was subjective because the HDD stored more data so this would depend on the specific HDD. These answers were not allowed because some may be the opposite.
- Some candidates wrote that the SSD was a more modern technology, but this did not answer the question.
- Some answers stated that the SSD did not have movable parts, but did not expand on this. They could have added that there was less chance of error as the SSD could save while it was moving.
- Some candidates wrote that SSDs were lighter, but did not expand on this to state that they were more portable as they were lighter.
- General answers like ‘the SSD was safer and faster’ were too vague as they did not give any explanation. Candidates needed to explain what the SSD was faster at doing.

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## Question 12

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12 Many media companies now provide media streaming for users to watch their television programmes.

(a) Explain what is meant by the term media streaming.

*media streaming is live video or music that is delivered to computers  
using the internet*

[2]

### Examiner comment

- Some candidates stated that media streaming was live, but could not explain what the content was so wrote that it was 'something'.
- Some candidates wrote that they watch programmes, without explaining how this happens. Candidates needed to give a reason or add details to their answer.
- Some candidates stated that it was a platform to watch videos, but did not state the streaming part of the answer.

(b) Describe the benefits and drawbacks of media streaming.

*Saves time rather than downloading the media as it gives instant  
access to it. Unlike Blu-ray and DVD you do not own the media. It  
requires a good, stable internet connection.*

[4]

### Examiner comment

- Media streaming was not a popular subject among the candidates.
- Candidates wrote about the cost without explaining it further. Answers like 'a monthly subscription is needed' and 'this increases the cost' were acceptable, but just stating that it was more expensive was too vague.
- Candidates also wrote about illegal streaming, but this did not answer the question.
- Some candidates gave answers that were too vague. They stated that it offered a wide range of media, but did not add that this media would be far more up to date than DVD copies.
- Popular answers related to the use of the internet and bandwidth required.

## Question 13

13 gif and jpg file formats are used to store images.

(a) Give **one** reason for using each of the file formats. Each of your reasons must be different.

gif *is used to stored animated images*.....

.....

jpg *is used to store photographic images*.....

.....

[2]

### Examiner comment

- This question was well answered by the candidates with many giving the correct answer.
- Candidates stated that a gif was used for a video which was not technically correct, although ‘short video’ was accepted. Where candidates stated that jpg was used to store high quality images, this was accepted too.
- Some candidates stated that a gif has moving images and a jpg has still images, but did not expand on this. The gif part of the answer was correct, but candidates needed to add that the jpg is high quality.
- Some candidates stated that a jpg does not use up much storage space, but did not clarify this with a comparison. This depended on the original size of the file.

(b) Explain the differences between the two file formats.

*A gif format allows pictures that show motion while jpg supports*.....

*high quality images and therefore the image quality is better. jpg*.....

*uses lossy compression and has no background transparency which*.....

*gif format has. However the quality of the image does not degrade*.....

*even though a gif is saved many times.*.....

.....

[6]

### Examiner comment

- The example answer gave some repeats of (a), such as that a gif stores moving images and a jpg stores high quality images, although some candidates did not refer to high quality.
- Candidates seemed to understand gif better than jpg.
- Some candidates stated that gif format only allowed 256 colours, but tended not to give the alternative figures for jpg.
- Some candidates wrote about file space, but this was subjective as it depends on the size and quality of the image.

(c) The file size of an image can be reduced by changing the file format of the image.

State **two** other ways of reducing the file size of an image.

1 *changing the resolution of the image* .....

.....

2 *reducing its colour depth* .....

.....

[2]

### Examiner comment

- Some candidates struggled with this question. Some gave 'zip the image', but did not go on to state that this would compress the image which would have been correct.
- Other incorrect answers were that the image should be cropped, but this would remove parts of the image and even though it reduces file size, it does not answer the question.
- Common answers were to compress the image or to lower the image quality.
- Some candidates suggested reducing the size of the image, but this would not reduce its file size.

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## Question 14

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14 Identify the most appropriate method for reducing data entry errors from the descriptions given.

(a) Manually checking the data without reference to the original copy.

*proofreading*..... [1]

### Examiner comment

- Some candidates gave vague answers such as ‘checking the data more than once’, which was a repeat of the question.
- Some candidates stated that proofreading could cause human errors, rather than stating what it actually was.
- Some candidates gave ‘comparing with the original copy’, but this was not correct as proofreading does not do this.
- Very few candidates gave the correct answer.

(b) Checking that the data being entered is reasonable.

*validation*..... [1]

### Examiner comment

- Some candidates gave correct examples, which were acceptable.
- Some candidates mixed up ‘validation’ and ‘verification’.

(c) Preventing errors when data is copied from one medium to another.

*verification*..... [1]

### Examiner comment

- There was a mix up between this answer and ‘validation’.
- Candidates could provide examples, rather than just give the word ‘verification’.
- Incorrect answers included ‘re-type the data manually’.

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