

INTERNATIONAL GCSE

Information and Communication Technology (ICT) (9-1)

EXEMPLARS WITH EXAMINER COMMENTARIES
PAPER 1

Pearson Edexcel International GCSE in Information and Communication Technology (ICT) (4IT1)



Contents

Introduction	3
1.1 About this booklet	3
1.2 How to use this booklet	3
1.3 Further support	3
Question 1(b)(ii)	4
Exemplar response A	4
Exemplar response B	5
Question 1(d)(i)	6
Exemplar response A	6
Exemplar response B	7
Question 1(h)	8
Exemplar response A	8
Exemplar response B	9
Question 2(f)	10
Exemplar response A	10
Exemplar response B	11
Question 4(e)	12
Exemplar response A	12
Exemplar response B	13
Question 3(b)(i)	14
Exemplar response A	14
Exemplar response B	15
Question 3(f)	16
Exemplar response A	16
Exemplar response B	17
Question 5(g)	18
Exemplar response A	19
Exemplar response B	21

Introduction

1.1 About this booklet

This booklet has been produced to support teachers delivering the Pearson Edexcel International GCSE in Information and Communication Technology specification. The Paper 1 exemplar materials will enable teachers to guide their students in the application of knowledge and skills required to successfully complete this course. The booklet looks at questions from the June 2019 examination series, showing real candidate responses to questions and how examiners have applied the mark schemes to demonstrate how student responses should be marked.

1.2 How to use this booklet

Each item covered in this booklet contains:

- Questions and exemplar responses
- Mark schemes
- Examiner commentaries including the rationale for the decision and guidance on how the answer can be improved to earn more marks.

The exemplification highlights the achievement of the assessment objectives at the high and mid-level of candidate responses.

Centres should utilise the commentaries on the exemplification of marker decisions to support their internal assessment of students and embed examination skills into the delivery of the specification.

1.3 Further support

A range of materials are available from the Pearson qualifications website to support you in planning and delivering this specification, including: [the specification](#), [sample assessment materials](#), [Getting Started Guide](#) and [the Principal Examiner's Report](#).

Question 1(b)(ii)

(ii) Give **two** advantages to Kiki of using a **wireless** method to connect to the smartphone.

(2)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1bii	Any two from: 1. Can move around (while transferring data) 2. Does not have to waste time finding / connecting cables 3. Cost of cables / cheaper 4. Health and safety / no trailing wires.			(2)

Exemplar response A

1 Kiki can move ~~to~~ anywhere within the range of connectivity

2 ~~Kiki can move easy to set up~~ Cheaper: No additional costs for cables.

Examiner's comments:

This response was given 2 marks.

First response from mark point 1: 'move anywhere'.

Second response from mark point 3: 'cheaper'.

Exemplar response B

1. She can connect many devices at the same time.
2. She can connect from anywhere of the range of the signal.

Examiner's comments:

This response was not awarded a mark.

The first response does not relate to connecting her smartphone and therefore no mark can be awarded. The second response does not gain the mark from mark point 1 as it is not related to portability.

Question 1(d)(i)

(d) Kiki meets her friend, Zara.

- (i) Draw a diagram to show how Kiki's smartphone can be used to provide Zara's tablet computer with an Internet connection.

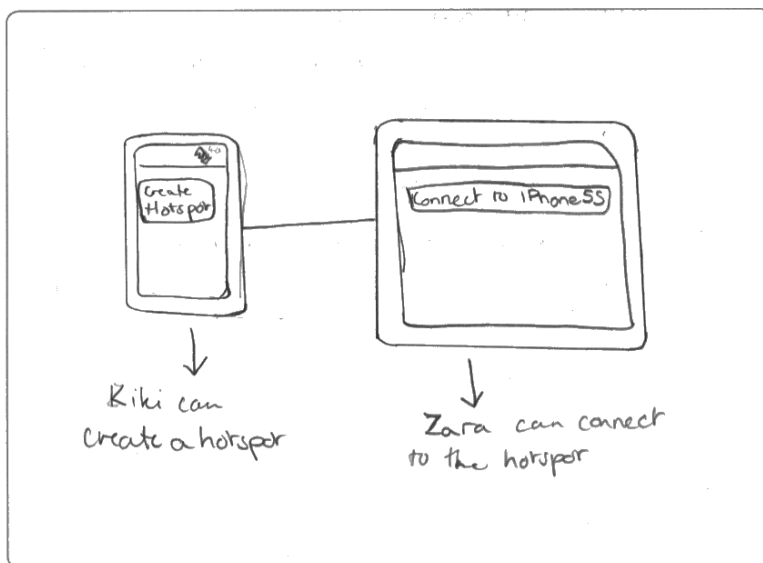
Label each component and the connectivity you use in your diagram.

(4)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1di	<p>A drawing that shows:</p> <ul style="list-style-type: none">• A smartphone connected to the Internet / mobile phone mast• Correct connectivity identified for this (3G, 4G etc.)• Tablet directly connected to smartphone• Correct connectivity identified for this (Bluetooth / Wi-Fi / USB etc.)		Award both MP1 and MP2 if mobile internet connection is displayed on the smartphone (e.g. '4G')	(4)

Exemplar response A

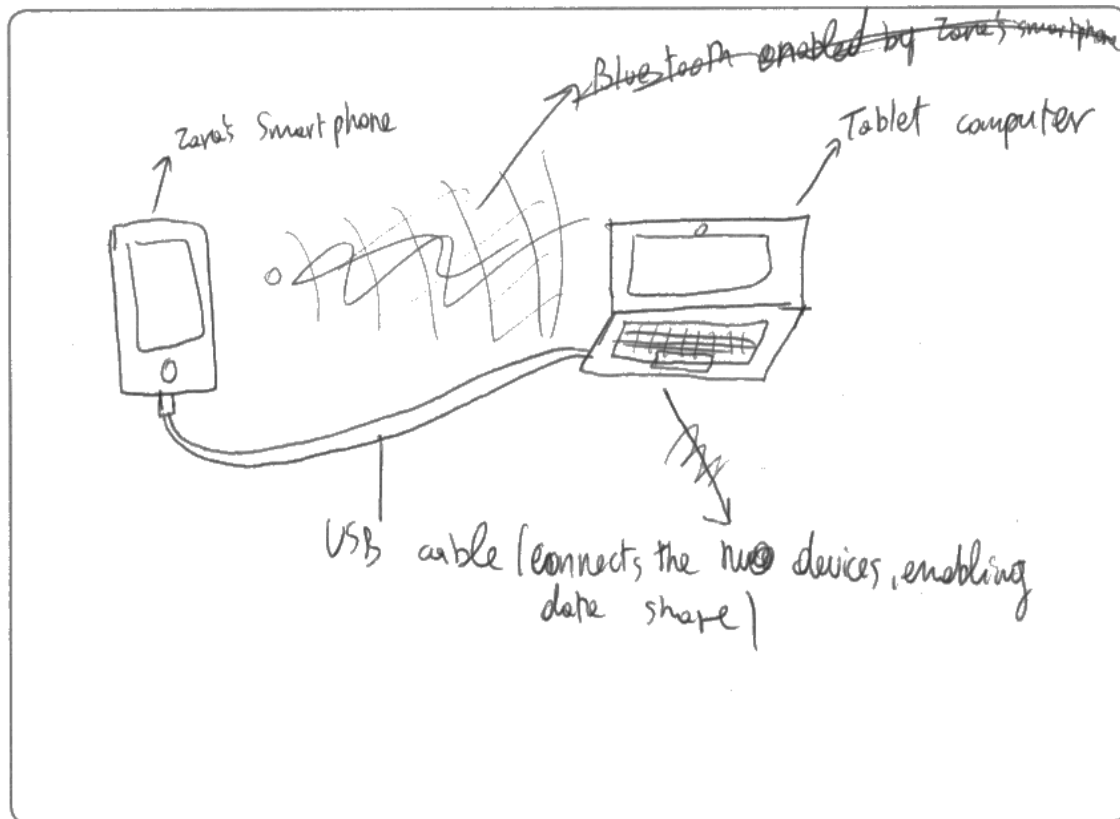


Examiner's comments:

This response was given 3 marks.

Mark point one and two can be given as a very small '4G' (and a representation of the mobile phone signal icon) has been included. The tablet is shown to be connected to the smartphone, so mark point three is awarded. However, no connectivity is labelled between the devices for mark point 4.

Exemplar response B



Examiner's comments:

This response was given 2 marks.

The smartphone is not shown to be connected to the Internet or mobile phone mast, so mark point one and mark point two could not be awarded.

The smartphone is shown to be connected to the tablet and the correct connectivity is identified, so mark points three and four were awarded.

Question 1(h)

(h) Explain **one** benefit of using solid state storage with a smartphone.

(2)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1h	An explanation such as: <ul style="list-style-type: none">Data (transfer) will not be negatively affected by movement / less risk of damage to the drive (1). because solid state storage does not use moving parts (1) OR <ul style="list-style-type: none">Smartphones are portable (1) because solid state storage takes up less space / has no moving parts (1) OR <ul style="list-style-type: none">Longer battery life (1) because solid state storage uses less power (1)			(2)

Exemplar response A

Solid state storage is durable ~~as~~, it is flash storage, so when it is dropped it does not lose all of its data. This works well with smartphones as people tend to drop their phones a lot.

Examiner's comments:

This response was given 1 mark.

- 'Durable' is enough for 'less risk of damage to the device.'
- 'when it is dropped it does not lose all of its data' is a repeat of the first point and therefore not awardable.

Explain questions require linked expansions to provide reasoning. Look at the structure of the mark scheme, where the word 'because' is used as a connective. Candidates might find that using connectives prompts them to provide a linked response.

Exemplar response B

It works very fast. Recording data that user need to store on high speed.

Examiner's comments:

This response was given 0 marks.

'Works very fast' - speed is irrelevant to the context of the question. Where context is provided, candidates should respond in the context of the question to demonstrate that they can apply their knowledge.

Question 2(f)

(f) Explain **one** advantage of using hosted applications with tablet computers.

(2)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2f	An explanation such as: Hosted applications take up less storage/memory/resources (1) because they don't have to be installed onto the tablet (1). OR Apps are updated regularly/automatically (1) by the host / meaning that users don't have to do it (1). OR Hosted applications are stored online (1) so users can collaborate (in real time) (1).			(2)

Exemplar response A

One advantage is that it reduces storage space on the computer as you don't need the entire application installed.

Examiner's comments:

This response was given 2 marks.

This is an example of a linked response that gains both marks from the first mark group in the mark scheme.

Exemplar response B

That they will not have to be always installed to be used with the tablet computers.

Examiner's comments:

This response was given 1 mark.

The mark was awarded for stating that they do not have to be installed, but no further mark could be awarded as no connected point is made. Note how the mark scheme is structured with two linked points and how connectives are used.

Both marks would have been awarded if the response had reversed the explanation provided in the mark scheme e.g. 'That they will not have to be always installed to be used with the tablet computers, which is an advantage because it takes up less storage.'

Candidates should practise using connectives to create linked responses to explain and describe questions.

Question 4(e)

(e) Describe how MAC addresses can be used to prevent access to networks.

(3)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
4e	A description such as: Every device/NIC has a unique MAC address (1) that can be blacklisted/whitelisted/checked/filtered (1) by a firewall (1).			(3)

Exemplar response A

MAC addresses are universally unique identifiers so the network administrator can only enter the MAC addresses of certain devices into the firewall during software updates. If MAC addresses are entered into the whitelist of the firewall, the device will have access to the network. but if the mac address is entered into the blacklist then network will prevent the device entering the network.

Examiner's comments:

This response was given 3 marks.

This response identifies that MAC addresses are 'universally unique identifiers' (for 'devices' – referenced later in the response) and therefore gains the mark from mark point 1. The response goes on to mention 'the firewall', so gains the mark from mark point 3 and then links this to the fact that MAC addresses can be 'entered into the whitelist of the firewall', thereby gaining the mark from mark point 3.

Describe questions require an account of something (often a process). Statements in the response need to be developed as they are often linked but do not need to include a justification or reasoning (like responses to **explain** questions do).

Exemplar response B

The MAC address is ^{universally} unique and so is not allocated by a user or dynamically using servers that run dynamic host control protocol. As it is specific, when the MAC address is stored on the server (authentication server) the server will match the MAC addresses to a database of other MAC addresses. Then if the particular MAC address is not available ^{in the} ~~the~~ database then the device with that particular MAC address will not be given access to the network.

Examiner's comments:

This response was given 2 marks.

The response mentions that MAC addresses are universally unique, so gains the mark from mark point 1. The response goes on to state that MAC addresses are 'matched', which was enough to gain the mark for 'checked' in mark point 2. As there was no mention of a firewall, this response did not gain a mark from mark point 3.

Question 3(b)(i)

(b) The health monitor uses Bluetooth to transfer data to the smartwatch.

(i) Explain why Bluetooth rather than infrared is used for this transfer.

(2)

Mark scheme

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3bi	An explanation such as: Infrared requires line of sight / Bluetooth does not require line of sight (1) which is not always possible when exercising (1)	Responses about 'range' for the first mark. Responses related to transfer speed / bandwidth.		(2)

Exemplar response A

This is because infrared requires line of sight connection which is impossible during the exercise carried out by Ruwan unlike bluetooth which is used because it is more flexible and requires no field/line of sight.

Examiner's comments:

This response was given 2 marks.

An exemplary response that demonstrates applied understanding. It gained both marks for an explanation that contains reasoning linked to the scenario of the question. Candidates should try to apply their understanding to the context of the question.

Exemplar response B

Bluetooth does not require a Line of sight to send/transfer data whereas if one uses infra red they require a clear Line of sight to transfer. In case of interference data may not be transferred but in bluetooth data will be transferred despite not having a clear Line of sight.

Examiner's comments:

This response was given 1 mark.

The question asks about 'this' transfer, indicating that a response in context is required. However, this response does not link to the scenario to provide a contextualised rationale for the first point made.

Question 3(f)

(f) The health monitor stores 4 MiB of data.

Construct an expression to show how many bits are in 4 MiB.

(3)

Mark scheme

Question Number	Answer	Additional Guidance	Mark
3f	<ul style="list-style-type: none">• 1 mark for sight of 8• 1 mark for sight of 1024• 1 mark for complete expression ($4 \times 1024^2 \times 8$) that includes 1024^2 OR 1024×1024 OR 2^{20} and each component multiplied. Accept 1000 for 1024 Award all three marks for the result of the calculation: 33,554,432 Accept 32,000,000	Award 1 mark for sight of: 4,194,304 OR 4,096 OR 4,000,000 OR 4,000 as implies sight of 1024 OR 1000 Award 2 marks for sight of: 8,388,608 OR 8,192 OR 32,768 OR 8,000,000 OR 8,000 OR 32,000 as implies sight of 8 AND (1024 OR 1000) 1000 will be accepted in place of 1024 for this series only.	(3)

Exemplar response A

~~1 byte = 1 bit = 8 bytes, 8 bytes =~~
1 byte = 1024 KB
1 KB = 1024 MB
 $\Rightarrow 4 \text{ MiB} = 4 \times 1024^2 \times 8$

Examiner's comments:

This response was given 3 marks.

Although the working out is incorrect, it can be ignored as the complete expression is correct and gained all three marks.

Exemplar response B

1 byte = 8 bits,

~~4x~~ 4x8

4x1000 = 4000x8

32000 bits

Examiner's comments:

This response was given 2 marks.

Although we have sight of 8 and 1000 individually (and, therefore, could award the first two marks), we could have awarded those two marks from sight of '32000'. (See Additional Guidance.)

NB: '1000' was accepted in place of '1024' (in reference to storage) for this series only. Candidates will not be awarded marks in future series unless they use the correct storage units and conversions. Candidates and centres are advised to refer to section 1.5.6 of Issue 2 of the specification, which details the correct storage units.

Question 5(g)

(g) Discuss the impact of VLEs on learners.

(8)

Mark scheme

Question Number	Answer	
5g	<p>Candidates should compare different points of view, giving evidence for each one. The response does not require a conclusion. The indicative content is not exhaustive/prescriptive and candidates should be credited for other relevant content.</p> <ul style="list-style-type: none"> + Availability of work 24/7/365 + Personalised / adaptive learning + Organised (noticeboard / wall / assignment calendar) + Instant / automatic grading and gradebooks to monitor progress + Revision materials + Can increase contact with teacher beyond class time + Multimedia can be engaging + Accessibility for those who find attendance difficult + Collaboration <ul style="list-style-type: none"> - Could reduce face-to-face teacher contact so cannot ask for clarification as easily - Collaborative tools are not as personal as face-to-face - Limited assessment methods, overreliance on multiple-choice / closed questions - Expectations for engagement are raised so potential for lack of study/life balance - Hosted online so could lead to distractions - Could restrict access (digital divide) 	
Level	Mark	Descriptor (AO3 – Discuss)
	0	No rewardable material.
1	1-3	A limited number of points will be identified, which may only consider one point of view. At least one point will have evidence to support it. The discussion will have few (if any) links to the scenario. The response will lack clarity and organisation.
2	4-5	A number of points will be identified, which may consider both points of view. Some points will be supported by evidence. The comparisons will include links to the scenario but may include some generic points. The response will show some focus but may not be well organised.
3	6-8	A range of different points that consider both points of view. Most points will be supported by evidence. The majority of the discussion will link to the scenario. The response will show good focus and organisation.

Exemplar response A

Virtual Learning Environment (VLE's) is an online community that allows students/learners to access learning assessment and material online.

Firstly, learners can benefit from flexible access. That is, students/learners can access online educational material and worksheets anytime they want (24/7). This allows them to learn in ~~an~~ a comfortable environment. VLE's allow teachers to upload exam material and learning assessment material online to support the learners. Therefore, timelines can be used by the learners to have complete unrestricted access to online material. Therefore, learners can enhance their knowledge and become more intelligent.

Furthermore, VLE's have allowed the communication between teachers and students. That is, online chat groups can easily be used by students to clarify doubts and seek assistance in projects. Also, students can communicate with each other to enable collaborative working which tends to enhance the learner's experience by providing them different unbiased opinions of other learners.

However, VLE's can be ineffective. That is, many learners/students easily get distracted from their main aim of learning. Learners get distracted by online

social networking sites and gaming sites. So, students may not gain enough knowledge online.

continued.

(Total for Question 5 = 23 marks)

TOTAL FOR PAPER = 100 MARKS

Also, some learners/students don't have access to such useful online communities such as VLE's. This may be because they can't afford desktop PCs or even a subscription to an ISP to access internet. Therefore, these learners/students will be excluded from benefiting from online assessment materials and support from tutors and fellow colleagues.

In conclusion, the benefits of VLE ^{more} outweigh the drawbacks of VLE's. In future, when individuals have access to VLE's, the society would boom as almost everyone would have knowledge and skills.

Examiner's comments:

This response was given 7 marks.

This response contains a range of points both positive and negative, predominantly focusing on the impact on learners and mostly supported by evidence (examples), although some evidence is a little vague. The rest of the response is quite well structured. This clearly meets the descriptor for a level 2 response but does not fully meet the descriptor for level 3, given that the evidence provided is weak in places.

This is a response which was placed in the middle of level 3 and, on a 'best fit' approach, 7 marks were awarded.

NB: A conclusion is not required for questions that use the command word 'discuss'.

Exemplar response B

The impact that Virtual Learning Environments have had on students is ~~the~~ mostly positive. This is because it allows these learners to complete their work and do more work from their homes, which is a positive since they can work at their own pace, whenever they can.

For individuals who don't have access to a VLE from their home this could be quite difficult as it could result in them having to go to a local library or to someone's house who does have access to it, which ~~would~~ ^{could} be a hassle to do.

Overall I do believe that it is a positive impact since learners can work through their online assignments from their home, school or wherever, whenever they can which will only benefit them. Also if they have any issues or do not understand something they can use the internet to do some research and ~~learn~~ learn about it.

Examiner's comments:

This response was given 3 marks.

There is a limited number of points given, one for (working from home) and one against (lack of access for all). There is not a range of points so this does not clearly meet the criteria for a mark from level 2 (or level 3). There is some supporting evidence (examples) provided and therefore this was placed at the top of level 1, with 3 marks awarded.

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