ICT.

Unit: G061: Information, Systems and Application: High banded candidate style answer.

Introduction

OCR has produced these candidate style answers to support teachers in interpreting the assessment criteria for the new GCE specifications and to bridge the gap between new specification release and availability of exemplar candidate work.

This content has been produced by senior OCR examiners, with the input of Chairs of Examiners, to illustrate how the sample assessment questions might be answered and provide some commentary on what factors contribute to an overall grading. The candidate style answers are not written in a way that is intended to replicate student work but to demonstrate what a "good" or "excellent" response might include, supported by examiner commentary and conclusions.

As these responses have not been through full moderation and do not replicate student work, they have not been graded and are instead, banded "medium" or "high" to give an indication of the level of each response.

Please note that this resource is provided for advice and guidance only and does not in any way constitute an indication of grade boundaries or endorsed answers.

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1 An architect is setting up an office in her house.

(a) Sonia Patel is aware of the health and safety implications of using computers. When she sets up her office she wants to avoid any health and safety risks.

For each risk given below identify a different item that could reduce the problem.

[3]

Candidate style answer	Examiner's commentary
Repetitive Strain Injury (RSI) *Chair of adjustable height* **Back ache** *Foot rest* **Eyesight Defects** *Flicker free monitor*	The three items are different. They are appropriate for the problem. The question says identify so only single word/phrase answers are required

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(b) Identify three different output devices Sonia will need in the office. In each case give an example of how she would use it.

[6]

Candidate style answer	Examiner's commentary
Device 1 *Printer* **Use** *To print letters to customers* **Device 2** *Monitor* **Use** *To view her designs on screen* **Device 3** *Speaker*	There is an identification of three output devices and how she would use the device – examples related to the context.

Use	To use messaging to talk to customers	

(c) Identify three tasks for which Sonia could use a spreadsheet.

[3]

Candidate style answer	*Examiner's commentary*
Task 1 *To calculate costs of the building* Task 2 *To create graphs of income and expenditure for her accountant* Task 3 *To store customer names and addresses for use in a mail merge*	The three tasks must relate to Sonia and her use of a spreadsheet.

(d) Sonia needs to transfer data between two applications with no common format

Describe how data can be transferred between these applications without using cut and paste.

[4]

Candidate style answer	*Examiners commentary*
She needs to export the data from the first package into a common format, such as CSV. *This can be imported into the second application, converted into a format native to the second application and saved.*	The order is important – there are four marks so there should be four steps. In the answer given there are five steps which could gain marks.

2 An insurance company has commissioned a software house to write a program to calculate insurance premiums.

(a) The program will have a tailored data-entry screen.

Describe three design considerations that should be taken into account when designing a data-entry screen.

[6]

Candidate style answer	*Examiner's commentary*
1 The colour of the text and background is important – the use of blue/green is not recommended as colour blind people would not be able to differentiate between them. *The use of white space is important – the text needs to be clear and spaced out so that it can be read with the space breaking up sections* *3 The use of error messages is important, these must conform with the user mental model, red and cross for*	The design considerations need to be identified and then expanded upon by giving more information. This may include the use of an example, as in one and three.

wrong, green and tick for correct.	

(b) Some of the data needs to be coded before it can be used. Describe two problems the insurance company might have as a result of coding the data. [4]	
Candidate style answer	*Examiner's commentary*
1 The precision of data is coarsened. If the person collecting the information has to fit the response into a pre ordained set of boxes they may lose precision, for example, they may ask for favourite colour carpet and be given the response of Light Blue. If there is only Blue on the form, then they will have to select this and lose precision of data as this was not what the person actually said. *2 The coding of value judgements is down to the person filling in the form and may differ between people. For example, if you asked how good a product was and the response was not This requires an identification and then an expansion of the identification. The two answers have been expanded with sufficient detail to understand the problems.* *4 marks bad – when coding this on a scale of 1-5, some might give it a 3 and some a 4.*	This requires an identification and then an expansion of the identification. The two answers have been expanded with sufficient detail to understand the problems.

(c) The new program uses both real numbers and integers. **(i)** What is meant by a real number? [1]	
Candidate style answer	*Examiner's commentary*
Number with decimal places	Definition answer.

(ii) Give a suitable piece of information that should be stored as a real number by the insurance company. [1]	
Candidate style answer	*Examiners commentary*
Price of premium	This is a contextual based answer – there are many possible answers here, this is an example.

(iii) What is meant by an integer number?	
	[1]
Candidate style answer	*Examiner's commentary*
Number without decimal places	Definition answer. Contrast to 3(c) (i) – candidates will get them the wrong way round.

(iv) Give a suitable piece of information that should be stored as an integer number by the insurance company.	
	[1]
Candidate style answer	*Examiner's commentary*
Number of years no claim bonus	This is a contextual based answer – there are many possible answers here, this is an example.

(d) The data entered needs to be validated.	
(i) What is meant by validation?	
	[1]
Candidate style answer	*Examiner's commentary*
Data entered is within the boundaries of pre set rules	This is often given by the candidates as data entered is correct –this is wrong. Validation is also confused with verification.

(ii) Give two methods of validation that could be used with a text based data entry field.	
	[2]
Candidate style answer	*Examiner's commentary*
1. Presence **2.** Length	The text based part of the question eliminates type check and range check. The question asks for 'Give' so single word/phrase only is required.

(e) The insurance company needs good quality information in order to produce quotations.	
Identify three factors that affect the quality of information.	
	[3]
Candidate style answer	*Examiner's commentary*
1 **Volume** 2 **Presentation** 3 **Age**	There are six factors identified in the specification, this is asking for regurgitation of facts only.

3 A home computer enthusiast is performing monthly maintenance on her machine.	
Describe two different types of utilities she could use to assist her in this maintenance.	
	[4]
Candidate style answer	*Examiner's commentary*
1 **Defragmentation software takes**	There are marks for identification and for the

parts of files and puts them together to create single file within continuous memory. *2 Anti virus software checks for and prevents viruses.*	subsequent expansion. There are no marks for the use of proprietary names.

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4   A removal company uses a computer-based route finding system to assist in planning the route between two houses.

Identify six characteristics of computer-based route finding systems.

[6]

Candidate style answer	Examiner's commentary
1 Routes printed *2 Input start and end point* *3 Avoid roads* *4 Show speed cameras* *5 Give fastest/scenic route* *6 Work out fuel consumption*	This is identification only of characteristics. These can be broken down into input, output and storage required by the system.

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5   A holiday company uses a spreadsheet to create a financial model of its business.

(a)   Describe how the following characteristics of modelling software could be used to create the financial model.

[4]

Candidate style answer	Examiner's commentary
Variables *This holds values which are used in calculations and can be changed by the user, this could include values such as the amount paid to employees per hour or the electricity cost* *Formulae* *This performs calculations. It is entered by the user and includes + - * /. It can be used to multiply hours worked by hourly wage for the employees.*	This requires an identification and expansion; in this case the expansion includes an example related to the scenario showing how it is used.

(b)   The model uses absolute and relative cell referencing.

Describe absolute cell referencing and give an example of how the holiday company might make use of it in its financial model.

[3]

Candidate style answer	Examiner's commentary
Description Cell reference used in a formula/function does not change when sequenced. *Example If wages is hours * cost per hour, the cost per hour could be absolute because it does not change.*	There are two marks for the description and one for the example. Note that it is more than the cell value not changing, the replication is important. The example must be relevant to absolute referencing and to the scenario.

(c) Describe what is meant by a workbook and give an example of how the holiday company might make use of it in its financial model.	
	[3]

Candidate style answer	Examiner's commentary
Description A collection of worksheets that is saved under a single name. **Example A workbook could contain 12 worksheets, each worksheet showing sales data for a month.**	There are two marks of the description and a third mark for an example related to the scenario. The example must be about workbooks and not worksheets.

6 An airport uses different methods to convey information to its passengers. **Identify where each of the following methods could be used in the airport and give an advantage of its use.**	
	[6]

Candidate style answer	Examiner's commentary
Pictures For images of illegal items in baggage **The picture is language independent and can be understood by all nationalities regardless of language spoken.** **Sound For calling late customers for flights** **If the passenger is in a toilet or not near a screen they can hear the name being called.** **Video For adverts of products** **The product can be seen from a distance and does not need sound to attract viewers.**	The three uses must be contextualised and the advantage is of its use within the given environment.

7 The university has several colleges. These colleges are in different buildings. **Describe three advantages to the University of networking the computers in the colleges together.**	
	[6]

Candidate style answer	Examiner's commentary
1 Expensive resources, such as high quality printers can be shared amongst the users, this will save money for the University as instead of each computer having a printer they only need to buy one. **2 The university can set up an intranet to allow employees to share work. This will enable its employees to collaborate and to have access to important documents such as Data Protection Policies.**	The advantages given must be to the University and not to the users – although there will be some overlap. There is identification and then description of advantage.

3 **The University can ensure that the computers have an up to date anti virus software on them by having a central installation and configuration. This will mean that any updates and installed centrally and rolled out automatically without a member of staff having to visit every machine, saving time and money and the consequences of loss of data from a virus attack.**	

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8 **A company has an on-line store which sells camping equipment. It uses a relational database to store details of customers, suppliers and orders.**

(a) **The relational database is normalised to third normal form (3NF).**

Describe two advantages to the company of having its database normalised.

[4]

Candidate style answer	Examiner's commentary
1 **There will be a higher integrity of data – as the data is only stored in one place if changes are made the company can be sure that all copies are changed – as there is only one and that anyone who uses the data is using the correct version.** **2** **There is less duplication of data in normalised data and this means that overall there will be less data being stored. An advantage of this is that less storage space will be required meaning less storage upgrades saving money.**	The advantages are identified and then expanded on. The advantage is to the company.

(b) **Identify one characteristic of data in first normal form (1NF).**

[1]

Candidate style answer	Examiner's commentary
The data has no repeating groups.]	This is straight bookwork.

(c) Identify two characteristics of data in third normal form (3NF).

[2]

Candidate style answer	Examiner's commentary
1 **The data is in 2nd normal form** **2** **Every non-key attribute is non-transitively dependent on the primary key**	This is an identification and bookwork.

(d) A data dictionary contains information on the database.

Identify three components found in the data dictionary.

[3]

Candidate style answer	Examiner's commentary
1 Table name 2 Field name 3 Field data type	This is an identification.

(e) The company wants its customers, who use the on-line store, to be able to search its products using both simple and complex queries.

(i) Describe the difference between a simple and a complex query.

[2]

Candidate style answer	Examiner's commentary
A simple query only has one parameter whereas a complex query will use more than one parameter. .	There are two marks, essentially for the features of each that make them different.

(ii) Give an example of a simple query and a complex query that the customer might use.

[2]

Candidate style answer	Examiner's commentary
Simple Product = Tent Complex Product = Tent and Price < 200	These are examples, they should be within SQL format and include field name and parameter.

9 A cinema holds information on its regular customers in a database and wants to send them information on new film releases.

Mailmerge can be used to complete this task.

(a) Describe the process of mailmerge.

[4]

Candidate style answer	Examiner's commentary
The data source is created in word processing or spreadsheet software. In word processing software a standard letter is made. The data source is liked to the letter and merge fields and word fields placed into the letter. The letter is checked and then the merged letters are output either to a new file or to a printer.	This is a stages question – does the candidate understand the stages required and put them into the correct order.

(b) Describe two advantages of using mailmerge to send information to the customers.
[4]

Candidate style answer	Examiner's commentary
1 Only one letter needs to be checked for accuracy, this will allow many letters to be created and time is saved as only one needs to be examined in detail. *2 Searches can be made on the data source to select specific customers who will be likely to respond to the contents of the letter increasing the "hit rate" of the mail shot.*	There is an identification and then a subsequent expansion linked to the advantage.

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10   An employment agency visits universities and gives presentations to students on the services it offers.

(a)   The presentation could be delivered using printed acetate or a computer and projector.

Describe two features of a presentation that would only be available when using a computer and projector.

[4]

Candidate style answer	Examiner's commentary
1 Animation is available; this is when text can fly in across the screen. *2 Videos are available – these can run from a mouse click within the presentation or automatically when a slide is shown.*	The key here is the difference between computer and acetate. There is an identification and then expansion – the expansion is of the feature.

(b)   The presentation could use vector or bitmap graphics.

Identify four differences between vector and bitmap graphics.

[4]

Candidate style answer	Examiner's commentary
1 Vector takes up less memory than Bitmap *2 Bitmap pixelate on enlargement whereas vector do not* *3 Bitmap is made up of squares of colour, vector is made up of mathematical data* *4 Vector requires more processing power to display and alter than Bitmap*	This is four features of one that are different to the other. A good candidate will include how the feature affects both.

(c) The employment agency could use clip art images in the presentation.

Describe two advantages of using clip art images instead of personal photographs in the presentation. **[4]**

Candidate style answer	Examiner's commentary
1 **There is a wide range of clipart available and this means that whatever the image that they want, they are probably going to be able to find it.** **2** **There is usually a wide range of clipart included with the software package, this means that it is readily available and accessible without having to go out and spend time and money acquiring it.**	Two identifications and two expansions. The answers given here can also be used as disadvantages – the identification is usually the same, it is the expansion that determines whether it is advantage or disadvantage

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The quality of your written communication will be assessed in your answer to this question.

11 Discuss the impact on society of using the Internet to shop.

[9]

Candidate style answer	Examiner's commentary
Individuals have a wider range of choice, they are not limited to the items that are physically for sale within the local area or an area reachable by car. If they can find something on the Internet then it is accessible to them and they can purchase it. This means that that whatever they want can be found for sale and shipped to them. They are no longer restricted. This can also be the same for price – a local shop may sell the item that they want but it might be more expensive. Sites such as pricerunner can compare prices for them and make sure that they are getting a good deal. If this means that they can get it cheaper other than at their local shop then they can save money to spend on more items. **This does mean that there is likely to be an increase in pollution. Buying an item from around the world will increase the carbon footprint. If the same item is available locally as from around the world then the few extra pence might be a saving to the individual but at a cost to the planet.**	This is a positive impact and consequence.

One of the impacts of the Internet is that it can increase the carbon footprint and pollution, causing an increase in global warming. Of course, this is a full circle, an increase in global warming will lead to expensive fuel and flights which in turn will lead to it becoming more expensive to shop abroad than locally so in the end the local store will get the trade back.

This is a negative impact and consequence.

The Internet is convenient, it delivers to the door. You look, you pick, you pay and it arrives. There is no need to spend the afternoon visiting lots of shops or looking at lots of items. You can make better use of your time by using the Internet and cutting out the travel and walking around. The item is delivered and you can try it on in the privacy of your own home, make a decision and if you do not like it, send it back. This means that the Internet has had the impact of increasing our free time – we can use that to learn a new skills, read more and become erudite members of society or watch more television, the important point is that it is our choice.

This is a positive impact and consequence.

If you are expecting a delivery or for a parcel to be picked up from you, there is a need to be available. This ties you into one place. It is unlikely that you will be given a specific time that will be kept to. You have therefore lost the freedom to do what you want when you want and are reliant on staying in one place.

This is a negative impact and consequence.

Overall, there are many positive and negative impacts of the use of the Internet to shop. Whilst there is the range of choice available from worldwide, the impact on the planet is extremely detrimental. The freedom of having things delivered home has to be weighed against the lack of freedom and having to stay in.

This is a valid and comprehensive conclusion. Overall, the essay meets the criteria for the higher band. It has got to grips with some of the issues, there are others but four have been examined in depth. There is a conclusion.

The quality of your written communication will be assessed in your answer to this question.	
12 Discuss developments in ICT that may have an impact on how lessons could be taught in the future in schools.	
	[9]

Candidate style answer	*Examiner's commentary*
At the moment ICT in schools tends to be death by PowerPoint. The teacher goes through the slides whilst we make notes. Some lessons include the use of small handheld devices to answer questions. There is occasional use of podcasts. What are the future developments in ICT that can affect lessons? The first is probably the introduction of a proper, truly portable laptop with a battery life that will last all day. This will allow all text books, which now come on CD to be on the laptop and for it to be used in every lesson without running out of power. Having a workable computer for every lesson will allow worksheets to be completed and submitted straightaway which will allow the teacher to automatically mark them , using computer software, and for the results and comments to be given back instantly. This can increase motivation as there is no delay and improve the overall grades achieved.	This is a general introduction followed by a valid impact and consequence.
At the moment the ICT room is the only room with computers for every pupil in the class. In the future there could be a heads up display device that pupils wear that can send the teacher presentation straight to the pupil who are cocooned in their own world and learning at their own pace. As it is a private device it does not affect anyone around them and the teacher is free to assist. With a device such as this the learner can go at their own pace, repeat sections if necessary and gain individual help that may not be relevant to other members of the class. The individual learner will progress and gain better results, meaning a better degree course and better job.	This is a valid positive impact and consequence

Of course the new technology is not all good news. There is social isolation through the use of ICT, having personalised learning environments does not allow group discussion or interaction, sharing of views and opinions and giving the individual student the opportunity to grow and develop their verbal skills. This leads to a part of society that can only communicate electronically and have little social skills, this will eventually lead to a breakdown in society and have repercussions for future generations as they will see this as the normal way of communicating and learning and this will be perpetuated until we only communicate through txt and msn. School at the moment is one location where physical interaction is required and this should not be removed.	This is a negative impact and consequence
The use of computer technology to mark scripts removes the human element of chance but does not allow for benefit of doubt. A human can give specific feedback and assistance on improving the work whilst a computer will give a mark and an algorithmic response on improvements. A computer has a limited range of responses that it can mark – free responses are notoriously difficult. If the response is limited in scope then it can be marked by a computer but these types of responses do not allow the student to demonstrate their ability in the subject. If computer marking en mass is introduced then the ability of the students will be lowered ass the level of response is reduced and this will have a knock on effect on the level of intelligence and ability of future generations. We will be used to giving short limited responses and not have the ability to engage in long discussions which will reduce our vocabulary.	This is a negative impact and consequence There is no conclusion to the essay – there does not have to be. There are two positive and two negative impacts and consequences. Although the consequences are not in a lot of detail, they do follow on from a large discussion of impacts and give a satisfactory ending to the paragraph. There is some overlap in the consequences of the two negative impacts – this is acceptable.