



Advanced Subsidiary GCE
INFORMATION AND COMMUNICATION
TECHNOLOGY

G061QP

Unit G061: Information, Systems and Applications

Specimen Paper

Time: 2 hours

Candidates answer on the question paper.



Candidate Name

Centre Number

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Candidate
Number

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INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers in blue or black ink, in the spaces on the question paper.
- Read each answer carefully and make sure you know what you have to do before starting your answer.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is 120.
- The quality of your written communication will be examined in question 11 and 12.
- No marks will be awarded for using brand names of software packages or hardware.

For Examiners Use

| | Mark | Max |
|--------------|------|------------|
| 1 | | 16 |
| 2 | | 20 |
| 3 | | 4 |
| 4 | | 6 |
| 5 | | 10 |
| 6 | | 6 |
| 7 | | 6 |
| 8 | | 14 |
| 9 | | 8 |
| 10 | | 12 |
| 11 | | 9 |
| 12 | | 9 |
| Total | | 120 |

This document consists of **14** printed pages and **2** blank pages.

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.

Repetitive Strain Injury (RSI)

Back ache

Eyesight Defects

[3]

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

Device 1

Use

Device 2

Use

Device 3

Use

[6]

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

Task 1

Task 2

Task 3

[3]

(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.

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.....

[4]

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.

1

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2

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3

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[6]

(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.

1

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2

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[4]

(c) The new program uses both real numbers and integers.

(i) What is meant by a real number?

.....
..... [1]

(ii) Give a suitable piece of information that should be stored as a real number by the insurance company.

.....
..... [1]

(iii) What is meant by an integer number?

.....
..... [1]

(iv) Give a suitable piece of information that should be stored as an integer number by the insurance company.

.....
..... [1]

(d) The data entered needs to be validated.

(i) What is meant by validation?

.....
.....
..... [1]

(ii) Give **two** methods of validation that could be used with a text based data entry field.

- 1
- 2

[2]

(e) The insurance company needs good quality information in order to produce quotations.
Identify **three** factors that affect the quality of information.

- 1
- 2
- 3

[3]

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.

- 1
- 2

[4]

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.

- 1
- 2
- 3
- 4
- 5
- 6

[6]

[Turn Over

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.

Variables

.....

.....

Formulae

.....

.....

[4]

(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.

Description

.....

.....

Example

.....

[3]

(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.

Description

.....

.....

Example

.....

[3]

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.

Pictures

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Sound

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Video

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[6]

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.

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[6]

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.

1

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2

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[4]

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

.....

..... [1]

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

1

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2

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[2]

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

Identify **three** components found in the data dictionary.

1

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2

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3

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[3]

(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.

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..... [2]

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

Simple

.....

Complex

.....

.....

[2]

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.

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..... [4]

(b) Describe **two** advantages of using mailmerge to send information to the customers.

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[4]

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.

1

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2

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[4]

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

Identify **four** differences between vector and bitmap graphics.

1

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2

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4

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[4]

(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.

1

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2

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[4]

[BLANK PAGE]

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OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Advanced Subsidiary GCE

**INFORMATION AND COMMUNICATION
TECHNOLOGY**

G061 MS

Unit G061: Information, Systems and Applications

Specimen Mark Scheme

The maximum mark for this paper is **120**.

| Question Number | Answer | Max Mark |
|-----------------|---|----------|
| 1(a) | 1 mark each, e.g: RSI: Adjustable chair/wrist rest/ergonomic keyboard (1) Back ache: adjustable chair/adjustable monitor/foot rest (1) Eyesight defects: Monitor filter/flicker free monitor/suitable lighting (1) | [3] |
| 1(b) | 1 for identification of device, 2 nd for example of use, e.g: Printer (1) to print letters (1) Monitor (1) to view designs on screen (1) Speaker (1) for sounds of error messages (1) | [6] |
| 1(c) | 1 mark each, e.g: Accounts (1) Calculations for designs (1) Mail merge data source (1) Creating graphs (1) | [3] |
| 1(d) | 4 from: Export from first application (1) Into common format (1) Import into target application (1) Convert (1) Save into new format (1) | [4] |

| | | |
|--|---|---|
| 2(a) | <p>1 for identification, 2nd for description, e.g White space (1) highlight important points (1) Volume of data (1) how much to place on a page (1) Consistency with house style (1) to ensure usability and less learning (1) Error messages (1) what form will they take (1) Accessibility / Disability (1) how to ensure full access (1)</p> | [6] |
| <p>(b)</p> <p>(c)(i)</p> <p>(ii)</p> <p>(iii)</p> <p>(iv)</p> | <p>1 mark for identify, 2nd for description / example, 2 from: Precision of data coarsened (1) e.g Light Blue coded as Blue (1) The user needs to know the codes utilised (1) If the user is not aware of the codes then they cannot interpret the data (1) Coding of Value judgements (1) e.g “Is the house in good condition?” to be coded as a judgement of 1-4. This will be coded differently by different people and makes comparisons difficult (1) Limited number of codes (1) If codes are made up of a range of letters and numbers they can end up running out of codes (1) Difficult to track errors (1) Validation will ensure the code is entered correctly but the nature of the code will make it difficult to see if the code is actually correct (1)</p> <p>1 from: Number with decimal point/fraction (1) Rational and irrational numbers (1)</p> <p>1 from, for example: Price of premium (1) Size of rooms/house (1) Any reasonable piece of data to do with insurance (1)</p> <p>1 from: Number without decimal point/no fraction (1) Whole number (1)</p> <p>1 from, for example: Age of property/car (1) Number of doors on car (1) Customer code (1) Insurance rating (1) Number of people insured (1) Years of no claims bonus (1)</p> | <p>[4]</p> <p>[1]</p> <p>[1]</p> <p>[1]</p> <p>[1]</p> |

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| <p>2 Contd.</p> <p>(d)(i)</p> <p>(ii)</p> <p>(e)</p> | <p>1 from: Data entered is reasonable/within boundaries/conforms to rules (1)</p> <p>2 from: Presence (1) Lookup / Existence (1) Length (1) Type (1) Picture / Format (1)</p> <p>3 from, 1 mark each: (allow example) Volume (1) Accuracy (1) Relevance/ valid (1) Age (1) Completeness (1) Presentation (1)</p> | <p>[1]</p> <p>[2]</p> <p>[3]</p> |
| <p>3</p> | <p>1 for identify, 2nd for description of utility, examples include: Defragmentation tools (1) reassemble files into contiguous clusters (1) Scandisk tools (1) searches for errors on disks (1) Anti-virus tools (1) checks and prevents viruses (1) File management tools (1) organises directories (copy/delete) (1) Disk compression tools (1) frees space by compressing files (1) Create resize volume tools (1) organisation of files (1) Searching (1) file duplication (1) find files by name or other criterion (1)</p> | <p>[4]</p> |
| <p>4</p> | <p>6 from, e.g: Can get directions in graphical form / maps (1) Directions can be given in text (1) Directions/maps can be printed (1) Maps/directions can be saved (1) Zoom in feature can be applied (1) Places of interest/fuel stations/hotels etc can be shown (1) Plot multiple destinations per journey/via (1) Can select road types e.g. motorways/roads etc (1) Can select fastest/shortest routes (1) User gives start place/postcode (1) User provides destination name/postcode (1) Different routes provided (1) Routes can be downloaded to GPS (1)</p> | <p>[6]</p> |

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|--|--|----------------------------------|
| <p>5(a)</p> <p>(b)</p> <p>(c)</p> | <p>2 marks each:</p> <p>Variables, any 2 from: Holds values which can change (1) Used in formulas/functions (1) e.g VAT rate/allow any valid example (1)</p> <p>Formulae, any 2 from: Performs calculations (1) Entered by user to add/subtract (1) eg SUM/allow any valid example (1)</p> <p>2 for description, 1 for example: Description: Cell reference remains static (1) when formulae/function is replicated/copied (1)</p> <p>Example: e.g For referring to delivery charges/VAT rate/NI Rate (1)</p> <p>2 for description, 1 for example: Description: Collection of worksheets (1) Given single name (1) Links between sheets (1)</p> <p>Example: (only allow examples given in the context of the holiday company) e.g Workbook for sales in the months for the year/each salesperson/branch (1)</p> | <p>[4]</p> <p>[3]</p> <p>[3]</p> |
| <p>6</p> | <p>2 for each method, 1 for example, 1 for advantage of use, eg</p> <p>Pictures: Advertisements (1) Can be seen from a distance/no need for silent environment (1)</p> <p>Sound: Fire alarms (1) Language independent/cuts through general noise (1)</p> <p>Video: Emergency procedures (1) Visual language free reference (1)</p> | <p>[6]</p> |

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| 7 | <p>1 for identify, 2nd for description/example, 3 from:</p> <p>Sharing of expensive resources (1) such as scanners and printers (1)</p> <p>Central rollout of software (1) set up software and rollout to all machines (1)</p> <p>Ability to backup/restore (1) data centrally (1)</p> <p>Access to own files (1) from different colleges (1)</p> <p>Accounting and monitoring of resources (1) access rights etc. (1)</p> <p>Electronic communication/meeting possible (1) use of email, video conferencing, messaging (1)</p> <p>Sharing (1) files/work (1)</p> <p>Setting up an intranet (1) creating a walled garden (1)</p> <p>Virus checking (1) from a central location (1)</p> | [6] |
| 8(a) | <p>1 for identification, 2nd for description, 2 from:</p> <p>Less money spent on storage (1) less data to store (1)</p> <p>Increased access times to data (1) less data to sort/search through (1)</p> <p>Higher data integrity (1) only one set of data stored for each item (1) less chance of storing two copies of the data which are different (1)</p> <p>Able to alter many data items at once saving time (1) through cascade update/delete (1)</p> | [4] |
| (b) | <p>1 from:</p> <p>Primary Key (1)</p> <p>Data is atomic (1)</p> <p>No repeating groups (1)</p> | [1] |
| (c) | <p>2 from:</p> <p>Data in first/second normal form/Allow one feature of first/second (1)</p> <p>Every non-key attribute is non-transitively dependent on the primary key (1)</p> | [2] |
| (d) | <p>3 from:</p> <p>Table Name (1)</p> <p>Field Name (1)</p> <p>Field Data Type (1)</p> <p>Field Length (1)</p> <p>Field Default Value (1)</p> <p>Field Validation (1)</p> <p>Table Security (1)</p> <p>Keys (1)</p> <p>Indexes (1)</p> <p>Relationships (1)</p> | [3] |
| (e)(i) | <p>2 from:</p> <p>Simple contains one parameter (1)</p> <p>Complex contains more than one parameter (1)</p> <p>Complex uses AND/OR/NOT (1)</p> | [2] |
| (ii) | <p>2 from, must be relevant to online store and customers, e.g</p> <p>Simple: Search for tents (1)</p> <p>Complex: Tents under £200 (1)</p> | [2] |

| | | |
|----------------------|---|-------------------|
| <p>9(a)</p> | <p>4 from:</p> <ul style="list-style-type: none"> Data source created (1) Using database/spreadsheet table in word processing (1) Standard letter created (1) Linked to data source (1) Mailmerge fields entered (1) Output created (1) | <p>[4]</p> |
| <p>(b)</p> | <p>2 from, 2 marks per advantage:</p> <ul style="list-style-type: none"> Required customer records held in database (1) can be selected (1) Many flyers (can be personalised) (1) and sent to selected customers (1) Flyers can be sent to selected customers (1) based on searches/sorts run on database (1) All appropriate customers (1) will be sent information (1) less risk of human error (1) Saves time (1) customer details already held on the database (1) Only need to proof-read once (1) all errors will be found/corrected (1) | <p>[4]</p> |
| <p>10 (a)</p> | <p>1 for identification, 2nd for description, 2 from, eg</p> <ul style="list-style-type: none"> Animation (1) <ul style="list-style-type: none"> Pictures with a time gap between them (1) Sound (1) <ul style="list-style-type: none"> Music on transition/animation (1) Transition (1) <ul style="list-style-type: none"> Automatic or manual between slides (1) Videos (1) <ul style="list-style-type: none"> Films played automatically or on mouse click (1) Carousel (1) <ul style="list-style-type: none"> Played automatically without intervention (1) Loops back to beginning (1) Interaction (1) <ul style="list-style-type: none"> Remember names/test scores (1) | <p>[4]</p> |

| | | |
|--|---|-------------------------------------|
| <p>10 contd.</p> <p>(b)</p> <p>(c)</p> | <p>4 from:</p> <ul style="list-style-type: none"> VG take up less memory than BM (1) VG make greater demand on Processor than BM (1) VG take up less space on disk than BM (1) VG can be grouped (1) VG made up of lines (1) VG can be created using lines/formulae/equations (1) BM made up of pixels (1) BM takes longer to load than VG (1) BM pixelate on enlargement (1) <p>1 for identify, 2nd for description, 2 from:</p> <ul style="list-style-type: none"> Choice (1) <ul style="list-style-type: none"> Wide range of clipart available (1) Copyright (1) <ul style="list-style-type: none"> Clipart is drawn and copyright is held by one person, photographs can contain people who need to give their permission to use the photo (1) Cost (1) <ul style="list-style-type: none"> No need to buy digital camera (1) Size (1) <ul style="list-style-type: none"> Clipart takes less disk space (1) | <p>[4]</p> <p>[4]</p> |
|--|---|-------------------------------------|

| | | |
|----|---|------------|
| 11 | <p>Banded Response: High: 7-9 Medium: 4-6 Low: 0-3</p> <p>High (7-9) Candidates will show a clear understanding of the problem and answer the question Candidates will accurately and clearly, as a minimum, give both positive and negative implications and a discussion will take place The information will be presented in a structured and coherent form appropriate to a discussion There will be few if any errors in spelling, grammar and punctuation Technical terms will be used appropriately and correctly</p> <p>Medium (4-6) Candidates will show an understanding of the problem and may answer the question from one viewpoint only Candidates may only give either positive or negative implications The information will be presented in a structured format appropriate to a discussion There may be occasional errors in spelling, grammar and punctuation Technical terms will be mainly correct</p> <p>Low (0-3) Candidates may demonstrate a limited understanding of the problem Information may be a list of points, with no implications Information will be poorly expressed and the presentation of the information may not be appropriate for a discussion There will be limited, if any, use of technical terms Errors of grammar, punctuation and spelling may be intrusive</p> <p>Answers may include: Choice of goods – can use Internet to search for lowest possible price and check reviews of stores before placing order to ensure that it is not a scam and your money is not going to be stolen Increase in purchases from abroad, not paying tax to UK government, therefore less income so tax rises needed elsewhere to recoup money lost May lead to a lack of social integration One needs to be in to receive a delivery of goods No need to leave the house – disabled, ill</p> | [9] |
|----|---|------------|

| | | |
|----|---|--------------|
| 12 | <p>Banded Response: High:7-9 Medium: 4-6 Low: 0-3</p> <p>High (7-9) Candidates will show a clear understanding of the problem and answer the question Candidates will accurately and clearly, as a minimum, give both positive and negative implications and a discussion will take place The information will be presented in a structured and coherent form appropriate to a discussion There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly</p> <p>Medium (4-6) Candidates will show an understanding of the problem and may answer the question from one viewpoint only Candidates may give either positive or negative implications The information will be presented in a structured format appropriate to a discussion There may be occasional errors in spelling, grammar and punctuation Technical terms will be mainly correct</p> <p>Low (0-3) Candidates may demonstrate a limited understanding of the problem Information may be a list of points, with no implications Information will be poorly expressed and the presentation of the information may not be appropriate for a discussion There will be a limited, if any, use of technical terms Errors of grammar, punctuation and spelling may be intrusive</p> <p>Answers may include: Recorded courses which can be played back in virtual reality Memory chips in the brain to contain information On line on demand testing and marking giving instant results Use of personal technology to take to all lessons – no text books With memory chips, all knowledge can be given to everyone therefore more time can be given to developing thinking and analysis skills which are valued by employees and make students more employable Use of technology requires students to have the equipment in working order for all lessons. If they forget it or it is broken then they will lose out on that lesson and be behind</p> | |
| | | [9] |
| | Paper Total | [120] |

Assessment Objectives Grid (includes QWC)

| Question | AO1 | AO2 | Total |
|-----------------|------------|------------|--------------|
| 1 | 16 | | 16 |
| 2 | 20 | | 20 |
| 3 | 4 | | 4 |
| 4 | 6 | | 6 |
| 5 | 10 | | 10 |
| 6 | 6 | | 6 |
| 7 | 6 | | 6 |
| 8 | 14 | | 14 |
| 9 | 8 | | 8 |
| 10 | 12 | | 12 |
| 11 | 9 | | 9 |
| 12 | 9 | | 9 |
| Totals | 120 | | 120 |