



General Certificate of Secondary Education  
2016

Centre Number

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Candidate Number

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## Information and Communication Technology (Full Course)

Unit 3: Understanding ICT Systems  
in Everyday Use and its  
Implications for Individuals,  
Organisations, Society and  
the Wider World



**[GIT31]**

\*GIT31\*

**WEDNESDAY 18 MAY, MORNING**

### TIME

2 hours.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page or on blank pages.**

Complete in blue or black ink only. **Do not write with a gel pen.**

Answer **all seventeen** questions.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 180.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Questions **7(b), 10(b), 11, 13(a), 14(c), 15(c) and 16(c)**.

10153



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**For Question 1 insert the appropriate letter in the space provided.**

**1 (a)** Select the correct statement about data.

- A** Data is information that has been processed
- B** Data is facts and figures that have been processed
- C** Data is facts and figures that have no meaning
- D** Data is information that has a meaning

Answer \_\_\_\_\_ [1]

**(b)** OMR stands for:

- A** Optical Magnetic Recognition
- B** Optical Magnetic Resource
- C** Optical Mark Recognition
- D** Optical Mark Resource

Answer \_\_\_\_\_ [1]

**(c)** Which statement about OCR is correct?

- A** OCR stands for Optical Code Recognition which is used to mark multiple choice examinations
- B** OCR stands for Optical Code Recognition which is used to scan typed or handwritten documents
- C** OCR stands for Optical Character Recognition which is used to mark multiple choice examinations
- D** OCR stands for Optical Character Recognition which is used to scan typed or handwritten documents

Answer \_\_\_\_\_ [1]



(d) Which statement correctly defines a virus?

- A Software which is designed to damage files on the computer
- B Software which enables the computer to access websites
- C Hardware which is designed to damage files on the computer
- D Hardware which enables the computer to access websites

Answer \_\_\_\_\_ [1]

(e) Which list contains only compressed file formats?

- A txt, mpg, mp3, bmp
- B jpg, mpg, mp3, zip
- C jpg, mp3, zip, txt
- D bmp, jpg, zip, txt

Answer \_\_\_\_\_ [1]

(f) Which statement is correct about flash media?

- A Flash media makes use of a magnetic disk and is read only
- B Flash media makes use of a magnetic disk and can be read from and written to
- C Flash media allows for high speed data transfer and is read only
- D Flash media allows for high speed data transfer and can be read from and written to

Answer \_\_\_\_\_ [1]

[Turn over



**(g)** Select the correct statement about RAM on a computer.

- A** RAM is Random Access Memory, is volatile and holds programs currently being run on the computer
- B** RAM is Read Access Memory, is volatile and permanently stores user data
- C** RAM is Random Access Memory, is non-volatile and permanently stores user data
- D** RAM is Random Access Memory, is non-volatile and holds programs currently being run on the computer

Answer \_\_\_\_\_ [1]

**(h)** Select the list which shows memory capacities in order from the smallest to the largest.

- A** Byte, Megabyte, Gigabyte, Kilobyte
- B** Byte, Kilobyte, Gigabyte, Megabyte
- C** Kilobyte, Byte, Megabyte, Gigabyte
- D** Byte, Kilobyte, Megabyte, Gigabyte

Answer \_\_\_\_\_ [1]

**(i)** Select the correct statement about the function of a check digit on a barcode.

- A** A check digit is used to calculate the cost of an item
- B** A check digit is used to update stock levels in supermarkets
- C** A check digit is used to ensure that the barcode has been entered correctly
- D** A check digit is used to produce an itemised receipt

Answer \_\_\_\_\_ [1]



(j) Select the correct statement about the production of utility bills.

- A Utility bills are created using real-time processing and the process makes use of a transaction file
- B Utility bills are created using real-time processing and the process does not make use of a transaction file
- C Utility bills are created using batch processing and the process does not make use of a transaction file
- D Utility bills are created using batch processing and the process makes use of a transaction file

Answer \_\_\_\_\_ [1]



2 (a) In the table below, circle the type of media used for each storage device.

STORAGE DEVICE	MEDIA TYPE	
CD-RW	MAGNETIC	OPTICAL
HARD DISK	MAGNETIC	OPTICAL
BLU-RAY DISK	MAGNETIC	OPTICAL

[3]

(b) Sophia has been involved in filming the school show. Her teacher has asked her to make a movie of it to distribute to parents.

Which of the storage devices listed above would be best suited for distributing this movie?

\_\_\_\_\_ [1]

(c) Sophia wants to make the movie available on the school website. Give Sophia **two** pieces of advice about placing a movie on a website.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]





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**(Questions continue overleaf)**



3 Below is a section from Alana's party budget spreadsheet.

	A	B	C	D	E
1	Party Date	April 17th 2016			
2	Funds Available	£900.00			
3	<b>Party Budget Summary</b>				
4	<b>Party Items</b>	<b>Estimated Cost</b>	<b>Actual Cost</b>	<b>Difference</b>	<b>Over budget?</b>
5	Venue	£175.00	£200.00	-£25.00	Yes
6	Disco	£125.00	£125.00	£0.00	No
7	Photographer	£75.00	£100.00	-£25.00	Yes
8	Decorations	£35.00	£32.30	£2.70	No
9	Gifts	£60.00	£60.00	£0.00	No
10	Printing	£25.00	£25.00	£0.00	No
11	Flowers	£70.00	£60.00	£10.00	No
12	Catering	£275.00	£310.50	-£35.50	Yes
13	Spot Prizes	£50.00	£70.00	-£20.00	Yes
14	Other	£100.00	£110.00	-£10.00	Yes
15	<b>Total Expenses</b>	<b>£990.00</b>	<b>£1,092.80</b>	<b>-£102.80</b>	
16					
17					
18	<b>Over budget</b>	<b>-£192.80</b>			



(a) How have the cells in row 3 been formatted?

\_\_\_\_\_ [1]

(b) How can the data in cells B5 to B15 be used to help Alana plan her party?

\_\_\_\_\_  
\_\_\_\_\_ [1]

(c) In the table below, write down the formula used to calculate the values in the following cells.

Cell	Formula
D5	[1]
C15	[1]
B18	[1]

(d) Alana's spending does not match her available funds.

(i) What information is available to her in column E?

\_\_\_\_\_  
\_\_\_\_\_ [1]

(ii) Complete the IF statement which provides the information in cell E14.

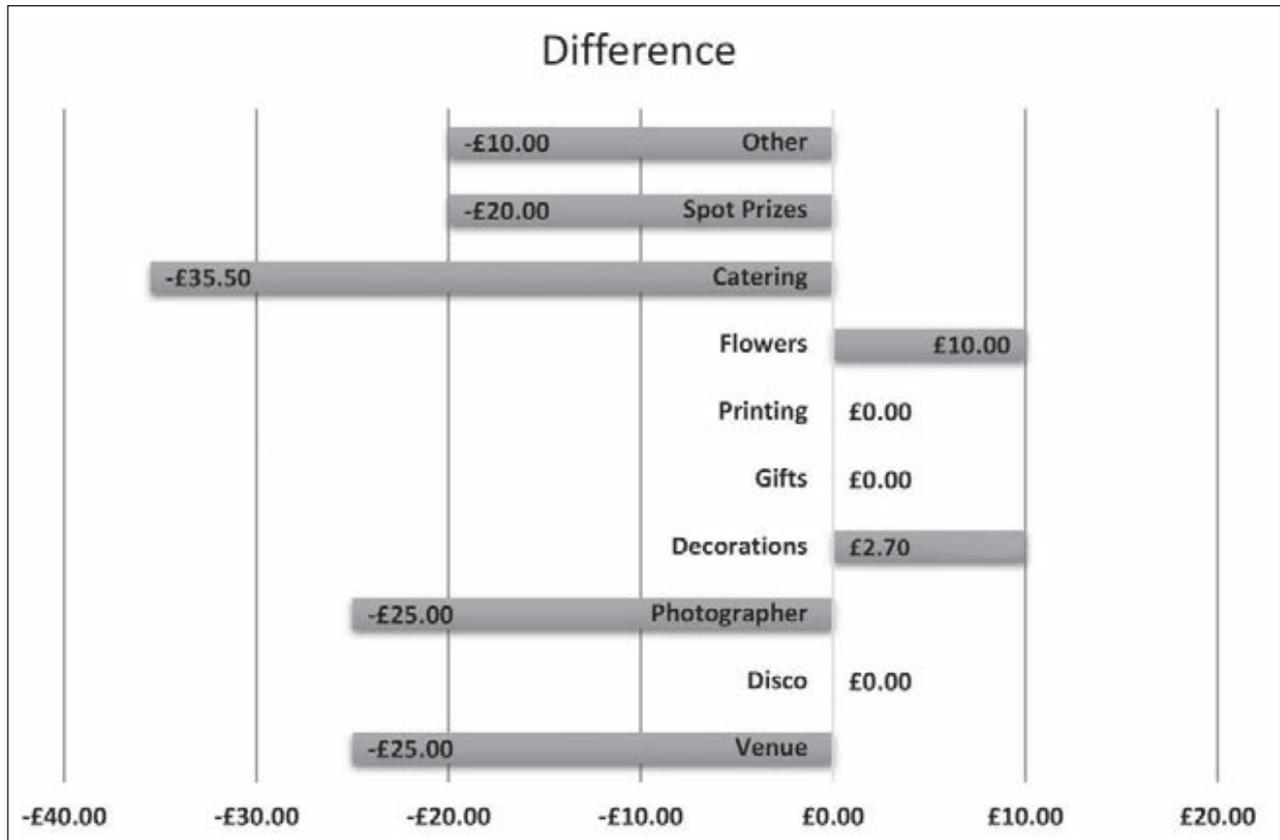
=IF ( \_\_\_\_\_ < \_\_\_\_\_ , "Yes", "No") [2]

[Turn over



(e) Alana must provide graphs to show information about the party costs.

(i) In the table below the graph, give **two** cell ranges that have been used to create the graph shown.



Cell range 1	[1]
Cell range 2	[1]

(ii) Explain the information provided by the graph shown above.

---

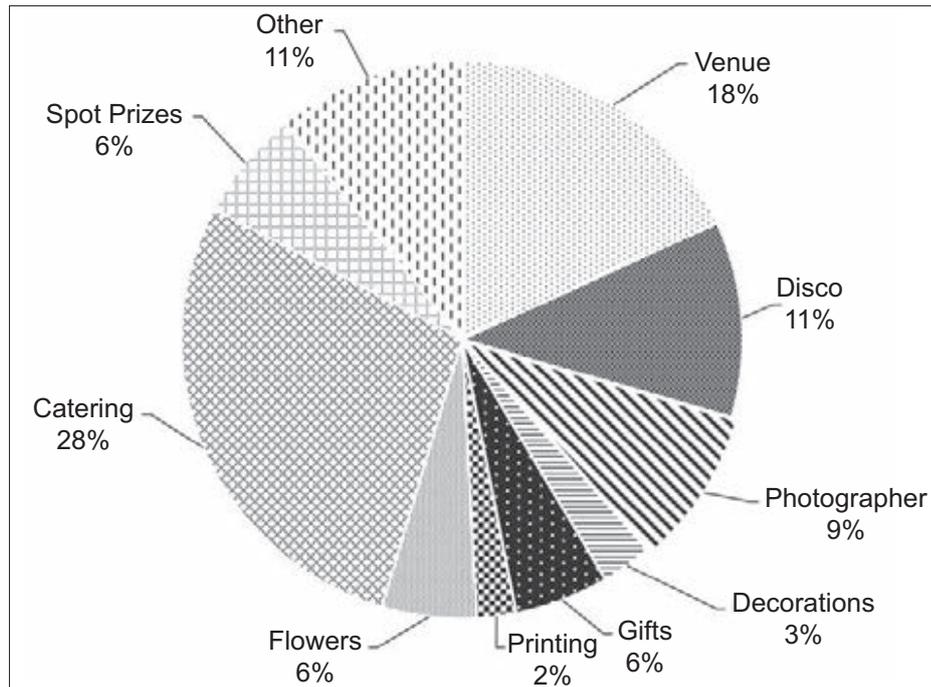


---

[2]



(f) Alana used cells in column C to produce the graph below.



(i) Describe the information provided in this graph.

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[2]

(ii) Explain **one** advantage of presenting information in this way.

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[2]

(iii) Alana wants to create a macro to print the chart. What is a macro?

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[2]

[Turn over



4 Dermot is an IT technician in a school.

He needs to explain to a new teacher how the ports at the front of their new PC can be used.

(a) What do the letters USB stand for?

USB: \_\_\_\_\_  
\_\_\_\_\_ [1]

(b) Apart from USB, list **one** other type of port available on a computer and state how the teacher could use a device connected to this port.

Port: \_\_\_\_\_  
\_\_\_\_\_  
Use: \_\_\_\_\_  
\_\_\_\_\_ [2]



(c) The label below appears on an external CD/DVD drive.



In the table below state whether each statement is TRUE or FALSE.

Statement	TRUE/FALSE
This device can be used to read Blu-ray discs	
This device can be used to read CD-ROM discs	
This device can be used to write information onto DVD-RW devices	
This device can be used to write information onto Blu-ray discs	

[4]

[Turn over



One of the Technology teachers wants to buy new hardware for students working on GCSE projects.

**(d)** Circle the most appropriate device for the tasks listed below. Give a reason for your choice.

**(i)** Creating project designs using freehand drawings

Mouse                      Graphics Digitiser                      Tracker Ball                      [1]

Reason \_\_\_\_\_  
\_\_\_\_\_ [1]

**(ii)** Producing hard copies of large scale designs

Plotter                      Monitor                      Scanner                      [1]

Reason \_\_\_\_\_  
\_\_\_\_\_ [1]





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5 The features available in Jim’s email software are shown below.



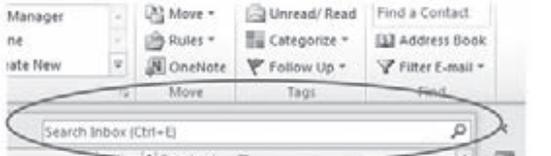
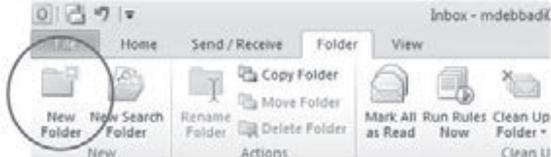
© Microsoft 2016. Used with permission from Microsoft

(a) State the function of the ‘Forward’ feature circled above.

\_\_\_\_\_ [1]

Jim has 2000 emails in his inbox.

(b) Explain how each of the features circled below can help Jim locate emails.

Feature	How this can help locate emails
 <p>© Microsoft 2016. Used with permission from Microsoft</p>	<p>[1]</p>
 <p>© Microsoft 2016. Used with permission from Microsoft</p>	<p>[1]</p>



Jim has set up groups of email addresses (distribution lists).

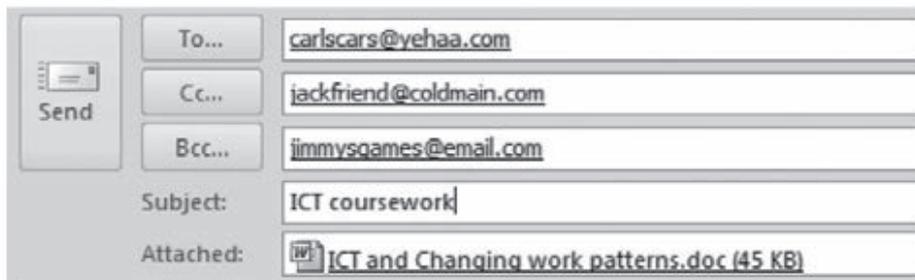
(c) Explain **one** advantage of using distribution lists to send emails.

---

---

[2]

Jim is sending an email to his friends, part of which is shown below.



© Microsoft 2016. Used with permission from Microsoft

(d) Which of the email addresses shown above will not be visible to the other people receiving the email?

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[1]

Jim attached a file to his email. It contains notes his friends missed in class the previous day.

(e) What would Jim's friends have to do with the attachment if they wanted to edit the file he sent them?

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[2]

[Turn over



6 Schools use a range of technologies to support learning.

(a) In the table below, tick (✓) the most appropriate technology for each of the tasks listed.

Task	Internet	Podcast	VLE	Video Conference
Searching for graphics to use in a GCSE Controlled Assessment task				
Submitting homework electronically so your teacher can mark it online				
Meeting with students from another school to discuss a joint project				
Listening to a pre-recorded revision lesson using a smart phone				

[4]

(b) Most schools filter Internet access in the classroom.

(i) Explain what is meant by the phrase 'filter Internet access'.

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[2]



(ii) State **two** reasons why schools should filter Internet access.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_ [2]

(iii) Explain **one** situation where Internet filtering could provide a problem for the pupils in the school.

\_\_\_\_\_

\_\_\_\_\_ [2]



7 Control systems perform many functions in the home. They are made up of a number of components.

(a) Explain the function of the following components of a control system and give **one** example of each.

(i) Sensor

Explanation: \_\_\_\_\_

\_\_\_\_\_ [2]

Example of a sensor:

\_\_\_\_\_ [1]

(ii) Actuator

Explanation: \_\_\_\_\_

\_\_\_\_\_ [2]

Example of an actuator:

\_\_\_\_\_ [1]





8 When searching online users frequently find thousands of results.

(a) State **two** ways in which a user could limit the number of results returned by a search engine.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

(b) Why is a browser necessary when using the Internet?

\_\_\_\_\_ [1]

(c) List **two** features of a browser that will allow users to find pages previously visited.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]





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9 The diagram below shows a section of a table in a database.

(a) Label the two shaded areas below as either field or record.

Member ID	Surname	Forename	DOB	Member Type	Paid
07135	Paine	Joe	12/10/89	Junior	Y
17171	Smith	Sandra	06/06/74	Full	Y
16104	Omar	Hawzhin	02/11/85	Full	N
17207	Chan	Christine	16/06/85	Junior	N
07078	Girvan	William	03/04/77	Full	Y
45897	eid	Sharif	03/04/98	Junior	N

[1]

[1]

(b) (i) Select a suitable Primary Key for the table above.

\_\_\_\_\_ [1]

(ii) What is the function of a Primary Key in any database?

\_\_\_\_\_ [1]



(c) Suggest a suitable data type for the following fields.

Surname \_\_\_\_\_ [1]

Paid \_\_\_\_\_ [1]

(d) Tables can be linked using common fields. Describe **one** advantage of linking tables in a database.

\_\_\_\_\_ [1]

A wizard is available in the information handling package.

(e) What is a wizard?

\_\_\_\_\_  
\_\_\_\_\_ [2]

[Turn over



(f) Information about members who were born after the 1/1/1986 and before the 31/12/1989 is required.

(i) What feature of the database should be used to find the members?

\_\_\_\_\_ [1]

(ii) In the table below tick (✓) the criteria that will find these members.

CRITERIA	Tick (✓)
=<01/01/1986 And >=31/12/1989	
>=01/01/1986 And <=31/12/1989	
>01/01/1986 And <31/12/1989	

[1]

(g) Validation is required for collecting the data.

(i) What is the purpose of validation during data collection?

\_\_\_\_\_  
\_\_\_\_\_ [2]

(ii) List **three** different types of validation checks.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_ [3]





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10 (a) When using online services, choosing a strong password is very important.

(i) State **two** characteristics of a strong password.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_ [2]

(ii) How is verification used when setting a password?

\_\_\_\_\_

\_\_\_\_\_ [1]



(b) Banks make use of online services. However, this is not without problems. Describe the problems that such online services may cause for:

- Customers
- Security

Customers \_\_\_\_\_

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Security \_\_\_\_\_

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[6]

[Turn over







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**[Turn over**

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**12** Robert has bought a new games console. He wants to register to play online and must pay an annual subscription.

He must fill out an online form and provide payment details for his subscription.

**(a)** How can Robert make sure the website is secure?

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[1]

**(b)** After registering, Robert's details were stolen from the company.

**(i)** What law is designed to protect Robert's details?

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[1]

**(ii)** Describe how the company has broken this law.

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[2]

**(c)** Encryption can be used to protect data. What is encryption?

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[2]



(d) Robert plays different types of games. Explain the following game types.

(i) Role Play Games

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[2]

(ii) Puzzle Games

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[2]

(e) Robert also plays games online with other people. State **two** ways in which Robert can ensure his identity is protected when playing online.

1. \_\_\_\_\_

---

2. \_\_\_\_\_

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[2]

[Turn over



13 John has been asked to develop the following applications for a local band.

- A spreadsheet to keep track of their finances
- A website to publicise the band

(a) Testing is an important part of developing an application. Describe how John should test each application before giving it to the band.

Spreadsheet \_\_\_\_\_

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Website \_\_\_\_\_

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[6]



(b) Whilst developing the website, John made use of vector and bitmap graphics.

(i) Describe **one** way in which a vector graphic differs from a bitmap graphic.

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[2]

(ii) In the table below, circle the graphic type you would use in the following situations.

Situation	Graphic	
A photograph of a concert for use in a booklet	Bitmap	Vector
		[1]
A cartoon image of the band's mascot to be resized for use on large signs	Bitmap	Vector
		[1]
An action photograph of the band for use on their website	Bitmap	Vector
		[1]

[Turn over



14 Max uses video conferencing software to speak to his family in Australia.

(a) Identify **one** item of hardware needed for the following operations during a video conference.

Voice input: \_\_\_\_\_

Voice output: \_\_\_\_\_ [2]

Sometimes there is a lag between the sound and the video during a call.

(b) Explain **one** reason for the lag in signal.

\_\_\_\_\_  
\_\_\_\_\_ [2]



(c) Discuss **two** benefits of video conferencing and **two** benefits of email for Max when speaking to his family in Australia.

Video conferencing

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Email

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [6]

[Turn over



15 Many people now play computer games on their mobile phones.

(a) Identify **two** technologies which enable users to access the Internet on their mobile phones.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

Some computer game controllers provide users with sensory feedback such as vibration.

(b) Describe **one** advantage to the user of this type of feedback when playing a computer game.

\_\_\_\_\_

\_\_\_\_\_ [2]





16 Northern College has a LAN with 300 computers linked in. Each computer has Internet access.

(a) (i) Expand the acronym LAN.

\_\_\_\_\_ [1]

(ii) State **two** advantages of having networked computers in the school.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_ [2]

(iii) Explain the term backup and give **one** method of backing up data on a LAN.

Backup \_\_\_\_\_

\_\_\_\_\_

Method of backup \_\_\_\_\_

\_\_\_\_\_ [3]

(b) Many operating systems use a GUI.

(i) What is the function of the operating system on any computer system?

\_\_\_\_\_

\_\_\_\_\_ [2]

(ii) Describe a GUI.

\_\_\_\_\_

\_\_\_\_\_ [2]



(c) Describe the function of the following components on the network.

- Firewall
- Router

Firewall \_\_\_\_\_

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Router \_\_\_\_\_

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[6]

[Turn over



17 Using the terms in the list below choose **one** term that best matches the definition in the left-hand column (not all terms will be used).

**COMPUTER MISUSE ACT**

**EFTPOS**

**URL**

**EPOS**

**ROM**

**MULTIMEDIA**

**CACHE**

**VoIP**

**PROTOCOL**

**INPUT**

**NETWORK INTERFACE CARD**

**SPYWARE**

**SWITCH**

**RSI**

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DEFINITION	TERM
A term which describes sound, video, animation pictures and text when used together	
The use of the Internet to make phone calls	
Equipment used to process payments at a supermarket checkout	
A form of injury caused by overuse of computers	
A network component used to link a group of computers on a network to the server	
A law which protects the work and creations of software developers	
Software which is used to gain unauthorised access to information on a computer	
A form of computer memory which is located close to the processor	
A law which is designed to prevent hacking	
A set of rules which govern the way in which data is transported on a network	

[10]



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Examiner Number

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