

Surname	Centre Number	Candidate Number
Other Names		0



**New GCSE**

4341/01

**COMPUTER SCIENCE**  
**UNIT 1: Understanding Computer Science**

P.M. THURSDAY, 12 June 2014

1 hour 30 minutes

For Examiner's use only	
Total	

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen. Do not use pencil or gel pen. Do not use correction fluid.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets at the end of each question or part-question.

Quality of written communication will be assessed in question **16**.



J U N 1 4 4 3 4 1 0 1 0 1

*Answer all questions.*

1. **Tick (✓)** the correct boxes below to show which **four** of the following items are secondary storage media. [4]

External hard disk drive	<input type="checkbox"/>
CPU	<input type="checkbox"/>
DVD	<input type="checkbox"/>
Cache	<input type="checkbox"/>
Network interface card	<input type="checkbox"/>
Solid state hard drive	<input type="checkbox"/>
USB flash memory stick	<input type="checkbox"/>
ROM	<input type="checkbox"/>



2. A tablet computer has many methods for data input and output.



For **each** of the items listed below, **tick** (✓) the correct box to show if they are used for:

- Input only
- Output only
- Input and output
- Not used for input or output

[6]

Item	Input only	Output only	Input and output	Not used for input or output
Microphone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volume button	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Touch screen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Memory card	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Camera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



3. A laptop computer is supplied with a *5GHz dual-core* central processing unit (CPU) and *8 gigabytes of RAM*.



(a) Briefly explain how a computer makes use of RAM. [2]

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(b) Give a reason why a computer with 8 gigabytes of RAM could run several large programs faster than a computer with 2 gigabytes of RAM. [2]

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(c) Describe what is meant by a *dual-core* CPU. State a possible benefit of its use. [2]

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(d) Describe what is meant by the term *5GHz*. [2]

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4. There are many different types of network topology, of which *Bus* and *Star* are types.

(a) Draw a diagram of a Star topology network clearly labelling **all** important hardware. [3]



(b) Star topology networks are more commonly used than Bus topology networks. Give **two** advantages and **two** disadvantages of a Star topology network compared to a Bus topology network. [4]

**Advantages:** .....

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**Disadvantages:** .....

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5. (a) State the role of *virus checker* software and identify **three** typical functions carried out by this software. [4]

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(b) State the role of *firewall* software and identify **three** typical functions carried out by firewall software installed on a network. [4]

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6. An estate agent stores details about the properties for sale on a computer system.

For **each** of the following items name the **most suitable** data type:

- the number of bedrooms ..... [1]
- the postcode of the property ..... [1]
- whether the property is still for sale (e.g. TRUE) ..... [1]
- the council tax band (e.g. A, B, C) ..... [1]

7. Describe the role of a *Domain Name System (DNS)* server and explain, **in detail**, how it is used to access a web site such as *www.wjec.co.uk* when typed into a web browser. [4]

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8. Describe the features of a *Graphical User Interface (GUI)* that are provided by the operating system. [5]

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9. A photograph file uploaded to a social networking website is compressed using a *lossy compression algorithm*.

(a) State the effect that compression has on the file. [1]

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(b) State **two** advantages for the social networking website of using compressed photograph files. [2]

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(c) A professional photographer uses a *lossless compression algorithm* when uploading photograph files to his website for customers to download and print.

Briefly describe why a lossless compression algorithm is the most suitable in this situation. [1]

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10. Computer programs can contain different types of *error*.

(a) Giving an example, state what is meant by a *syntax error*. [2]

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(b) Giving an example, state what is meant by a *run time error*. [2]

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(c) Giving an example, state what is meant by a *logical error*. [2]

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11. (a) State the number of bits in a byte ..... [1]  
 State the number of bytes in a kilobyte ..... [1]  
 State the number of kilobytes in a megabyte ..... [1]
- (b) Complete the following truth table, for the logical OR operation, by writing either **False** or **True** in the last column. [4]

A	B	A OR B
True	True	
True	False	
False	True	
False	False	

12. Characters are represented in computers using many different methods. **Two** methods of storing characters are *ASCII* and the *Unicode Standard*.

State **one advantage** of using Unicode instead of ASCII. [1]

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 .....

State **one disadvantage** of using Unicode instead of ASCII. [1]

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 .....



13. Below is an algorithm.

```
set counter = 0
output "Before the loop"

repeat
    set counter = counter + 1
    output "Count is" counter
until counter = 3

output "Loop has ended"
```

Write down **all** the outputs produced by the algorithm.

[2]

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14. (a) Convert the hexadecimal number **3C** to binary. [2]

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(b) Convert the hexadecimal number **3C** to denary. [2]

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(c) Convert the binary number **11110111** to hexadecimal. [2]

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(d) Explain why hexadecimal numbers are often used to represent binary numbers. [2]

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15. State a suitable use for the following protocols:

HTTP (Hypertext Transfer Protocol)

[1]

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FTP (File Transfer Protocol)

[1]

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SMTP (Simple Mail Transfer Protocol)

[1]

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16. A software company has employed several new members of staff. As part of their initial training, the company wants to make sure that they are aware of current legislation relevant to computing.

You have been asked to inform the new employees about their responsibilities under:

- The Data Protection Act
- The Computer Misuse Act
- The Copyright, Designs and Patents Act

Write a clear set of guidelines for the new employees.

[12]

*Quality of written communication will be assessed in this question.*

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