



Cambright Solved Paper

Tags	2023	CIE IGCSE	Computer Science	May/June	P1
	V2				
Solver	Myat Bhone Htet				
Status	Done				

- 1 Output devices are used to output data from a computer.

Circle **three** devices that are output devices.

actuator digital versatile disk (DVD) keyboard
microphone mouse printer scanner
sensor solid-state drive (SSD) speaker

[3]

- 2 Binary numbers can be converted to hexadecimal.

(a) Convert the **two** binary numbers to hexadecimal.

10010011 93

00001101 0D

[4]

For 10010011

1001 = 1+8 = 9

0011 = 1+2 = 3

For 00001101

0000 = 0

1101 = 1+4+8 = 13 = D

(b) A value is stored as a binary number in a register.

0	1	1	1	1	0	1	0
---	---	---	---	---	---	---	---

A logical right shift of **three** places is performed on the binary number.

(i) Complete the binary register to show its contents after this logical right shift.

1	1	0	1	0	0	0	0
---	---	---	---	---	---	---	---

[1]

(ii) State **one** effect this logical shift has on the binary number.

The value becomes incorrect as the right most bits are lost

(c) Give **two** reasons why a programmer may use hexadecimal to represent binary numbers.

- **Easier to understand**
- **Easier to debug**
- **Less likely to make a mistake**
- **Takes up last screen space**

(you only need to write down any two forms)

(d) Denary numbers can also be converted to hexadecimal.

Convert the denary number to hexadecimal.

301 [2]

Divisor	Dividend	Quotient	Division
16	301	18	13
		1	2
		0	1

12 13 = 12D

- 3 When keys are pressed on a keyboard, the text is converted to binary to be processed by the computer.

(a) Describe how the text is converted to binary to be processed by the computer.

If the key is pressed, a character set is used such as Unicode or ASCII code. Each character has a unique binary value and then it is converted into binary value.

(b) Text that is input into a computer can be stored in a text file.

A text file can be compressed using lossless compression.

(i) State what effect this has on the file size.

It reduces the file size

(ii) Describe how lossless compression compresses the text file.

A compression algorithm is used such as RLE (run-length encoding). Repeating words/characters/phrases are identified. First number represents value of identical item. Second number represents code of identical item.

(iii) Give **two** reasons why the text file may have been compressed.

Any two from:

To save storage space

To make it quicker to transmit

To make it small enough to attach to an email

To reduce the bandwidth needed to transmit

- 4 A student uses a mobile phone to take photographs for a school project.

The student needs to transmit the photographs to their computer. They could use serial data transmission or parallel data transmission to transmit the photographs.

- (a) (i) Describe how the photographs would be transmitted using serial data transmission.

Data is sent one bit at a time by using single wire.

- (ii) Give **two** benefits of transmitting the photographs using serial data transmission.

Any two from:

Data won't be skewed

Less chance of interference/crosstalk/corruption/error

Transmission speed is adequate

No out of order

Error free to data lost

- (iii) State **one** benefit of the student using parallel data transmission instead of serial data transmission.

Faster data transmission rate

- (b) The photographs are also transmitted across a network to cloud storage. A device on the network forwards the data towards its correct destination.

- (i) State the name of this device.

router

- (ii) Describe what is meant by cloud storage.

It is a collection of servers that store data in a remote location / that allows data to be accessed remotely or by using an internet connection.

- (iii) Give **one** disadvantage of storing the photographs in cloud storage instead of storing them locally.

Any one from:

May be less secure

May lose access to them if internet connection lost/not available

Reliant on a third party maintaining the hardware // by example

Could incur an extra/ongoing fee/cost

5 A programmer writes a computer program using a high-level language.

- (a) Tick (✓) **one** box to show which statement is correct about writing computer programs in a high-level language.

A Mnemonics are used to create instructions.

☐

B The computer program is harder to debug than a low-level language program.

☐

C The computer program is machine independent.

☒

D The hardware of the computer can be directly manipulated.

☐

[1]

- (b) The programmer uses a compiler to translate the computer program.

- (i) Describe how the compiler translates the computer program.

It translates the (high-level language) to low-level language/object code/machine code. It

translates all the code before it is executed. It creates an executable file.

- (ii) Describe how the compiler reports errors.

It creates an error report after trying to compile. It displays all errors in the code that require correction before execution can take place.

- (c) The programmer uses an integrated development environment (IDE) to create the computer program.

One function of the IDE is that it has the built-in compiler.

Give **three** other common functions of an IDE.

Any three from:

Code editors

Run-time environment

Built-in interpreter

Error diagnostics

Auto-completion

Auto-correction

Prettyprint

- 6 (a) Complete the statements about cookies.

Use the terms from the list.

Some of the terms in the list will **not** be used. Some terms may be used more than once.

compression	executable	hypertext markup language (HTML)	
hypertext transfer protocol (HTTP)		image	internet protocol (IP) address
persistent	session	sound	text
uniform resource locator (URL)		web browser	web server

Cookies are small**text**..... files that are sent between a
web browser/ web server..... and aweb server/ web browser..... .

.....**session**..... cookies are stored in memory and **not** in the user's
secondary storage.

When the web browser is closed a**session**..... cookie is lost,
whereas a**persistent**..... cookie is **not** lost.

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(b) Give **three** functions of a cookie.

Any three from:

Saving personal details

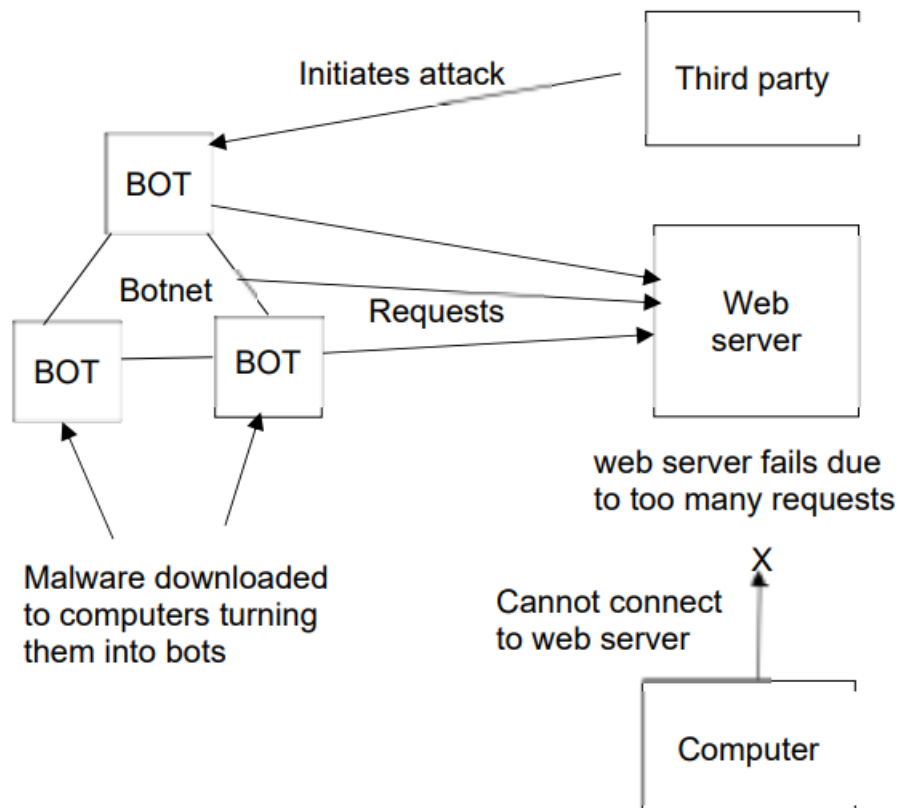
Storing login details

Tracking user preferences

Holding items in an online shopping cart

7 A distributed denial of service attack (DDoS) is a cyber security threat.

(a) Draw and annotate a diagram to represent the process of a DDoS.



Make sure these points included

Malware downloaded to several computers

turning it into a bot/zombie

creating a network of bots/zombies

Third party/hacker initiating the attack

Bots send requests to a web server at the same time

The web server fails due to the requests

Legitimate requests cannot reach the web server

(b) State **two** aims of carrying out a DDoS attack.

Any two from:

Revenge

To affect a company's reputation

Entertainment value

To demand a ransom to stop it

To test a system's resilience

To stop user to be accessed to an e-mail

(c) Give **two** security solutions that can be used to help prevent a DDoS attack being successful.

Using proxy server

Using firewall

Using up-to-date anti-malware software

8 A computer is connected to a network and assigned an IPv4 address.

(a) Tick (✓) **one** box to show which device would assign the IPv4 address to the computer.

- | | | |
|---|------------------------------|-------------------------------------|
| A | Domain name server (DNS) | <input type="checkbox"/> |
| B | Network interface card (NIC) | <input checked="" type="checkbox"/> |
| C | Router | <input type="checkbox"/> |
| D | Web server | <input type="checkbox"/> |

[1]

(b) Describe the characteristics of an IPv4 address.

Any FOUR from:

It is denary based
with numbers between 0 and 255
It is 32 bits
4 sets/groups of numbers
separated by dots

Any TWO from:

It is a unique address
It can be static or dynamic
It can be public or private
It contains the network prefix
and the host number

9 One component of an expert system is the inference engine.

(a) Identify the **three** other components in an expert system.

Rule base
Knowledge base
Interface

(b) Describe the role of the inference engine in an expert system.

It makes decisions by applying the rules/logic to the facts/knowledge to provide a result/diagnosis.

10 A user has both system software and application software installed on their computer.

(a) Describe the difference between system software and application software.

Give an example of each software in your answer.

System software provides the platforms where application software can run.

Eg (compilers/ linkers/ device drivers)

Application software performs specific tasks that user requires. Eg (word processor/ excel/ database)

(b) State which component in the computer would store both types of software when the power is turned off.

Secondary Storage

Additional notes

If you find any errors or mistakes within this paper, please contact us and we will fix them as soon as possible.