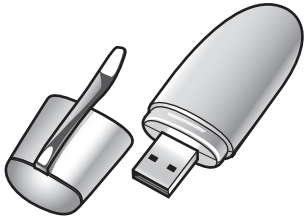


1 Name the devices **A**, **B**, **C** and **D** using the words from the list.

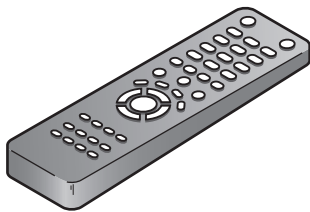
A



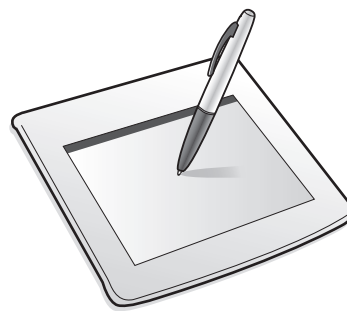
B



C



D



bar code reader

chip reader

graphics tablet

laser printer

magnetic stripe reader

pen drive

remote control

touch pad

A

B

C

D

[4]

2 Ring **two** network devices.

CD RW

hard disc

hub

PIN

plotter

switch

[2]

- 3 Tick whether the following items will appear in **User** or **Technical** documentation.

	User	Technical
frequently asked questions		
program coding		
system flowcharts		
trouble-shooting guide		

[4]

- 4 Complete each sentence below using **one** item from the list.

a bar code reader

a CD ROM

an inkjet printer

a keyboard

a knowledge base

a magnetic hard disc

- (a) The **most suitable** storage medium for storing data on a network server is

.....

- (b) Lists of illnesses and their symptoms are stored as

.....

- (c) An optical disc which cannot have data updated is

.....

- (d) Photos are output using

.....

[4]

- 5 Draw **five** lines on the diagram to match the software to its most **appropriate** use.

Software

Use

Desktop publishing software

keeping a record of phone numbers

Measuring program

matching illnesses to symptoms

Presentation software

producing a multimedia slideshow

Inference engine

monitoring the weather

Database

producing a magazine

[5]

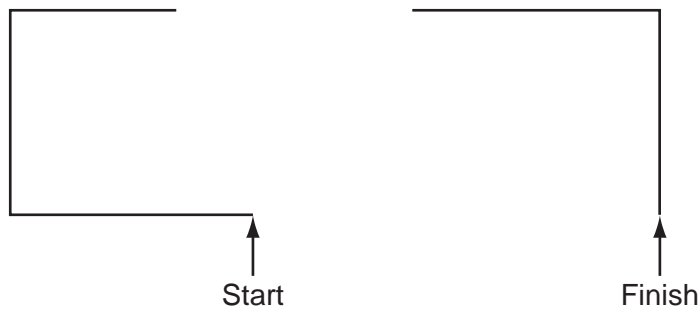
- 6 Tick whether the following statements apply to a **CLI** (Command Line Interface) or a **GUI** (Graphical User Interface).

	CLI	GUI
Instructions must be typed to get a computer to carry out an action.		
Icons represent programs.		
It is more important that users understand how a computer works.		
Menus are offered to help choose an action.		

[4]

- 7 A student wishes to use floor turtle to draw this shape:

Name and explain the meaning of **four** instructions that the turtle graphics software would need to contain in order to draw the shape. No two lines are the same length.



Instruction 1

Meaning

.....

Instruction 2

Meaning

.....

Instruction 3

Meaning

.....

Instruction 4

Meaning

..... [8]

8 A greenhouse is controlled by a microprocessor.

(a) Tick **three** physical variables that would be monitored.

	✓
Humidity	
Temperature	
Pressure	
Wind speed	
Light	
Wind direction	

[3]

(b) Explain the difference between measurement and control.

.....

.....

.....

..... [2]

(c) Give **four** advantages of using a computer rather than allowing the students to control the growing conditions.

1

.....

2

.....

3

.....

4

..... [4]

- 9 A sports shop owner uses a spreadsheet to calculate his profits. This is part of the spreadsheet.

For
Examiner's
Use

	A	B	C	D	E
1	Item	Selling Price	Cost price	Profit per item	Number in stock
2	Kino Trainers	\$45.00	\$40.00	\$5.00	126
3	Goalagame Boots	\$44.00	\$38.00	\$6.00	145
4	Melchester Rovers shirt	\$78.00	\$65.00	\$13.00	104
5	IOM football	\$51.00	\$42.00	\$9.00	56
6	Beckett shinpads	\$40.00	\$32.00	\$8.00	101

- (a) Give the cell reference of the cell that contains \$42.00

..... [1]

- (b) Give the cell reference of a cell that contains an integer.

..... [1]

- (c) How many rows are shown in the spreadsheet?

..... [1]

- (d) Write down the formula which should go in cell D2.

..... [1]

- (e) When the spreadsheet was created a similar formula to D2 had to go in cells D3 to D6. Describe how to enter these formulae without typing them.

.....

.....

.....

..... [2]

- (f) This spreadsheet is an example of a financial model.
Give **two** examples of computer models, other than financial models.

1

.....

2

..... [2]

- (g) Tick **three** reasons why computer models are used.

	✓
The real thing may need too large a timescale.	
Computer models waste a lot of raw materials.	
The real thing is quicker to build.	
If a computer model fails it does not need rebuilding.	
Once a computer model is built it does not cost a lot to run.	
A model does not cost anything to make.	

[3]

10 Aftab owns a company which has a small network of computers.

(a) Give **two** advantages of having computers networked.

1

.....

2

..... [2]

He wants to connect the computers to the internet.

(b) Name the device he would need to be able to do this.

..... [1]

(c) Give **two** benefits and **two** drawbacks of connecting to the internet.

Benefit 1

.....

Benefit 2

.....

Drawback 1

.....

Drawback 2

..... [4]

11 Many banks offer internet banking. To access this online service customers have to log on to the system.

(a) Explain why authentication techniques are necessary.

.....

.....

.....

.....

.....

..... [3]

(b) Customer data is encrypted. Explain what encryption is and why it is used.

.....

.....

.....

.....

.....

..... [3]

12 The growth of the internet has led to many new developments.

Explain what the following terms mean.

Spyware

.....

.....

.....

Spam

.....

.....

.....

Social networking site

.....

.....

..... [6]

- 13** Anya has employed Raymond, a systems analyst, to create a new database system for sports day at her school. Here are some of the questions teachers and students might ask about the results of the athletics competition:

What position did Peter Njoka come in the 100 metres?

Who won the 1500 metres?

The winner of the 800 metres was wearing which Race ID?

Each athlete wore a Race ID consisting of one letter followed by three digits. The longest race is the 1500 metres.

- (a)** Complete the design table below filling in the field names and the **most** appropriate data types to create a database which would answer these questions.

Field name	Data type
Race_ID	

[7]

- (b)** Name and describe the most appropriate validation check which would be carried out on the Race_ID field.

Name

Description

..... [2]

- (c) Anya wants to have a system which will make it easy to enter data.
Describe **five** features of a well designed input screen.

For
Examiner's
Use

1
.....
2
.....
3
.....
4
.....
5
..... [5]

14 Sarbjit has a desktop computer at home which he uses for internet banking.

For
Examiner's
Use

- (a) Identify **two** other computer systems he could use to do internet banking when away from home.

1

.....

2

..... [2]

- (b) Discuss the advantages and disadvantages to banks of using internet banking.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

- 15** Give **four** advantages to bank customers of using ATMs rather than going to the bank to withdraw cash.

1

.....

2

.....

3

.....

4

..... [4]

- 16** Some mobile telephones (cell phones) can be used to make video calls.
Describe **four** advantages of making video calls rather than sending messages by email.

1

.....

2

.....

3

.....

4

..... [4]

Page 2	Mark Scheme	Syllabus	Paper
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- 1 A Pen drive (1) B Chip reader (1)
C Remote control (1) D Graphics tablet (1) [4]

- 2 CD RW hard disc hub
PIN plotter switch [2]

3

	User	Technical	
frequently asked questions	✓		(1)
program coding		✓	(1)
system flowcharts		✓	(1)
trouble-shooting guide	✓		(1)

- 4 (a) The **most suitable** storage medium for storing data on a network server is **a magnetic hard disc** [1]
(b) lists of illnesses and their symptoms are stored in **a knowledge base** [1]
(c) An optical disc which cannot have data updated is **a CD ROM** [1]
(d) Photos are output using **an inkjet printer** [1]

- 5 Desktop publishing software → keeping a record of phone numbers
Measuring program → matching illnesses to symptoms
Presentation software → producing a multimedia slideshow
Inference engine → monitoring the weather
Database → producing a magazine [5]

Page 3	Mark Scheme	Syllabus	Paper
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6

Instructions must be typed to get a computer to carry out an action	✓		[4]
Icons represent programs		✓	
It is more important that users understand how a computer works	✓		
Menus are offered to help choose an action		✓	

7 **Four** matched pairs from:

INSTRUCTION	MEANING
FORWARD n	Move n forward
BACKWARD n	Move n backward
LEFT t	Turn left t degrees
RIGHT t	Turn right t degrees
PENUP	Lift the pen
PENDOWN	Lower the pen

1 for instruction

1 for meaning

[8]

8 (a)

Humidity	✓	[3]
Temperature	✓	
Pressure		
Wind speed		
Light	✓	
Wind direction		

(b) Measurement is the monitoring of physical variables without the microprocessor taking action

[1]

Control is when the microprocessor takes action depending on sensor readings

[1]

Page 4	Mark Scheme	Syllabus	Paper
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(c) Four from:

Computer (readings) are more accurate than students
 Students might forget to take readings/readings can be taken at regular intervals
 Computer takes more reliable readings
 Readings can be taken/control can be carried out more frequently
 Readings can be taken/control can be carried out any time of day or night
 Computers can respond to changes immediately/quicker than students
 Students might be unavailable to take readings during school holidays/computers can work continuously/without taking a break [4]

9 (a) C5 [1]

(b) Any cell from e2:e6 [1]

(c) 6 [1]

(d) =b2-c2 [1]

(e) Two from:

Highlight D2 and click copy
 Highlight D3:D6 and click paste
OR
 Highlight D2 and manoeuvre to bottom right hand corner of D2
 Using fill handle/little black square/cross drag down to D6
OR
 Highlight D2:D6
 Click on fill then down [2]

(f) Two from:

Simulations
 Mathematical models
 Scientific models
 Civil engineering models [2]

(g)

The real thing may need to large a timescale	✓
Computer models waste a lot of raw materials	
The real thing is quicker to build	
If a computer model fails it doesn't need rebuilding	✓
Once a computer model is built it doesn't cost a lot to run	✓
A model doesn't cost anything to make	

[3]

Page 5	Mark Scheme	Syllabus	Paper
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10 (a) Two from:

Only one printer is needed
Only one scanner is needed
Data can be shared between computers/data can be accessed by one computer from another more easily
Software can be shared/updated more easily
All computers can access the internet through one connection [2]

(b) Router/modem [1]

(c) Advantages – **two** from:

Can communicate with other companies by email
Can use the internet to place orders
Can use the internet to buy materials
Can hold video conferences
Can create own website to publicise company

Disadvantages – **two** from:

Workers may access undesirable sites
Workers may waste time playing games/going on social network sites/updating their blog/online shopping/banking
Viruses/malware could be downloaded
Could make the company susceptible to hackers [4]

11 (a) **Three** from:

Authentication techniques such as user names and passwords identify the user to the system
Without authentication anybody would be able to access data
Hackers would be able to amend/delete data without being prevented
Would have to rely on other methods such as firewalls to prevent unauthorised access. [3]

(b) **Three** from:

Causes data to be scrambled/encoded
Requires an encryption key/software to encrypt
Requires a decryption key/encryption software to decrypt
Results in data which is not understandable/readable
Protects sensitive data...
... from being understood if it falls in to the wrong hands [3]

Page 6	Mark Scheme	Syllabus	Paper
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12 Spyware

Two from:

Software that gathers data from computers without the user realising

It monitors and records all key presses

It sends this information back to the hacker who sent it out

Spam

Two from:

Electronic junk mail/sending of unsolicited emails

Sent to everybody on a mailing list/many emails sent at once

Can slow down networks

Can fill up the receiver's mail box and therefore hard disk

Social networking site

Two from:

Online communities of like minded users

Enables users to share photos

Enables users to communicate with each other

Enables users to organise meetings

Allows users to set up profiles

[6]

13 (a)

Field name	Data type
Race_ID	Text
Race_length	integer
Name	Text
position	integer

[7]

(b) Format/Picture

Checks the data is of the format beginning with a letter and ending in three digits and is only four characters long.

[1]

[1]

(c) **Five** from:

Appropriate spacing for each field

Buttons to go forward/backwards

Screen filled/not too much white space

Drop down lists to choose an option (such as race length)

Button to save data/submit/accept

Clearly defined input area for each field

Tick boxes/radio buttons to enter choices

An easy to read font/font size

A sensible font colour/background colour

Easy to follow instructions for completing screen/help icon

No overlapping of items

[5]

Page 7	Mark Scheme	Syllabus	Paper
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14 (a) Two from:

Smart phone
Laptop with internet access
Tablet computer

[2]

(b) Six from:

Advantages:

Fewer bank tellers so less paid out in wages
Less actual cash handled – fewer robberies
Have access to a wider customer base
Fewer branch offices needed – less spent on rates/rent/utilities
Less money spent on security staff

Disadvantages

Initial cost of hardware/software is expensive
Need to retrain staff
Loss of customers/more difficult to sell other services due to lack of personal touch
Costs of system maintenance

Must have at least one of each to gain full marks

[6]

15 Four from:

No embarrassment of not having sufficient funds
Less time spent queuing
Can get money any time of day or night
Own bank may be further to travel to than nearest ATM
Can use most ATMs/does not have to be own bank
Have choice of languages so is easier to understand/be understood

[4]

16 Four from:

You get immediate feedback
You know you have the right person/don't have to worry that you've got the wrong email address
You can ask questions immediately based on feedback/carry out an interactive conversation
Less impersonal/less risk of upsetting recipient
Can make yourself understood more easily
You can see the other person's reaction

[4]