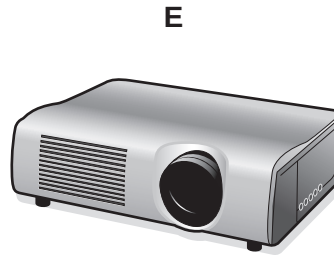
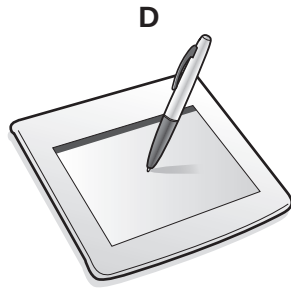
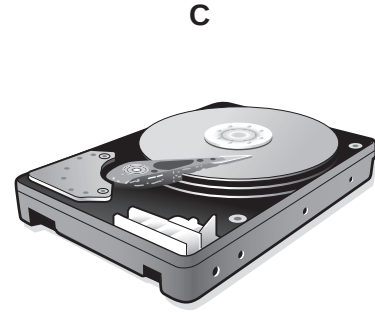
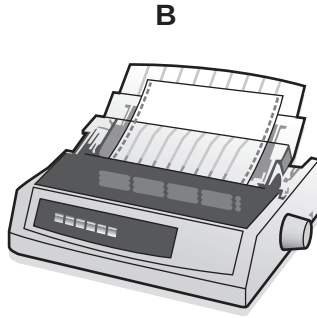


1 Name the devices **A**, **B**, **C**, **D** and **E** using the words from the list.



Digital camera

Dot matrix printer

Floppy disc drive

Graphics tablet

Hard disk drive

Keyboard

Magnetic stripe reader

Memory stick

Multimedia projector

Remote control

Scanner

Temperature sensor

A B

C D

E

[5]

2 Ring **two** items which are storage devices.

Bar code reader

Keyboard

Laser printer

Memory stick

Mouse

Zip disc drive

[2]

3 Tick **True** or **False** next to each of these statements.

	True	False
Dot matrix printers produce high quality output.		
Laser printers are very noisy.		
Graph plotters are used when extremely large hard copy is required.		
Inkjet printers are used where continuous stationery is required.		

[4]

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

a bank cheque a floppy disc an inkjet printer

a light sensor a memory stick a microphone

a mouse a plotter a school register

(a) Options from a menu can be selected using

(b) Magnetic ink characters are used to record information on

(c) A very large file which needs to be moved from one computer to another for editing can be stored on

(d) Sound can be input to a computer using [4]

5 Tick **True** or **False** for the following statements about RAM and ROM.

	True	False
RAM is not volatile.		
ROM is used to store the BIOS of a computer.		
The data in ROM is easier to change than that in RAM.		
RAM is used to store the data the user is currently working on.		

[4]

6 A floor turtle can use the following instructions:

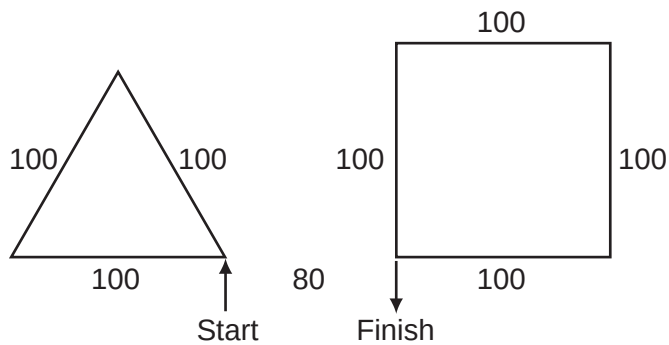
INSTRUCTION	MEANING
FORWARD n	Move n mm forward
BACKWARD n	Move n mm backward
LEFT t	Turn left t degrees
RIGHT t	Turn right t degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT n	Repeat the following instructions n times
END REPEAT	Finish the REPEAT loop

Complete the set of instructions to draw these regular shapes by filling in the blank lines. Each side is 100 mm long and there is a gap of 80 mm between the two shapes.

PEN DOWN
 LEFT 90
 REPEAT
 FORWARD 100
 120

 BACKWARD

 RIGHT 90



[5]

- 7 Tick whether the following problems are **Health** problems or **Safety** problems related to the use of computers.

For
Examiner's
Use

	Health	Safety
Headaches caused by prolonged use.		
Trailing wires in a computer room.		
RSI through continual typing.		
Back problems through bad posture.		
Too many plugs in an electric socket.		
Drinking water while using a computer.		

[6]

- 8 Tick **three** applications which use on-line processing.

	✓
Producing utility bills.	
Paying for goods at an EFTPOS terminal.	
Making an airline booking.	
Producing monthly payrolls.	
Monitoring a patient's condition in a hospital.	
Reading data from bank cheques.	

[3]

- 9 A systems analyst has been asked by a librarian to develop a computer system to store information about books and borrowers. After the existing system is analysed the new system will be designed. The first item to be designed will be the input screen.

(a) Name **four** items of data about **one** borrower, apart from the number of books borrowed, that would be input using this screen.

1

2

3

4 [4]

(b) Describe **four** features of a well designed input screen.

1
.....

2
.....

3
.....

4
..... [4]

(c) The librarian will need to type in data about each book from existing records. In order to prevent typing errors the data will be verified. Describe **two** methods of verification which could be used.

1
.....
.....
.....

2
.....
.....
..... [4]

- (d) After the system is designed it will need to be implemented and then tested.

No borrower can take out more than 6 books. Describe the **three** types of test data that can be used, using a number of books as an example for each.

1

.....

.....

.....

.....

2

.....

.....

.....

.....

3

.....

.....

.....

..... [6]

- (e) The system must now be evaluated. Tick **three** reasons why this is done.

	✓
Improvements can be made.	
The hardware and software can be specified.	
Limitations of the system can be identified.	
To see how many books are required.	
To make sure the user is satisfied with the system.	
So that program coding can be written.	

[3]

For
Examiner's
Use

- (f) After the system is implemented the librarian will be given technical documentation and user documentation. Name **three** different components of each type of documentation.

For
Examiner's
Use

Technical

- 1
- 2
- 3

User

- 1
- 2
- 3 [6]

- 10 A supermarket uses a Chip and PIN system at its checkouts. Put the following steps in order using the numbers **2** to **8**. The first step has already been done for you.

The customer types in the PIN.	
If the PIN and the number stored in the chip are the same go onto the next step.	
The customer's account is checked to see if it has sufficient funds.	
The card is inserted into the reader.	1
The PIN is compared with that stored in the chip.	
The transaction is authorized.	
The device checks if the card is valid.	
The supermarket computer contacts the customer's bank computer.	

[7]

(a) Describe the inputs, outputs and processing of this system.

[6]

1

2

[2]

12 An automatic washing machine is controlled by a microprocessor.

(a) Tick **two** sensors which would have to be used in the machine.

	✓
Pressure sensor	
Proximity sensor	
Temperature sensor	
Oxygen sensor	

[2]

(b) Explain why computers are unable to read the data directly from these sensors.

.....

.....

.....

..... [2]

(c) Describe how the microprocessor uses data from the sensors to control the washing machine.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

- (d) There are many microprocessor controlled devices in the modern home. Describe the effects of these on people's lifestyles.

For
Examiner's
Use

.....

.....

.....

.....

.....

.....

.....

..... [4]

- 13 (a) Name **two** network devices that could be used to connect a LAN to a WAN

1

2 [2]

- (b) Describe the differences between a WAN and a LAN

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

- 14** A sports shop owner uses a database to store data about the products he sells. This is part of the database.

For
Examiner's
Use

Bar code	Brand name	Product type	Number in stock
1825698000040	Kino	Football shirt	22
2266127153625	Dasdida	Hockey boots	15
3756643392895	Brooke	Netball	32
3014232068474	Borem	Rugby shorts	26
5010223708943	Mupe	Running shoes	12

- (a)** How many fields are there in this part of the database?

..... [1]

- (b)** How many records are there in this part of the database?

..... [1]

- (c)** Give the name of the field that is already sorted in order.

..... [1]

- (d)** The records shown are to be sorted in ascending order of number in stock. What will be the brand name of the first record in the database after it has been sorted?

..... [1]

- (e)** Which field would be the key field?

..... [1]

- (f)** Name and describe the most suitable validation check which would be carried out on the Number in stock field.

Name

Description

.....

.....

..... [3]

15 Tick **three** essential components of a computer to be used in a video conferencing system.

For
Examiner's
Use

	✓
Graph plotter	
Trackerball	
Microphone	
Speakers	
Optical mark reader	
Web cam	

[3]

16 On-line banking is used by many customers. Describe **three** methods of making sure that the data transferred is secure.

1

.....

.....

.....

2

.....

.....

.....

3

.....

.....

..... [6]

- [8]

[8]

Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

Question Number	Answer	Part mark															
1	A Scanner B Dot matrix printer C Hard disc drive D Graphics tablet E Multimedia projector	[1] [1] [1] [1] [1]															
2	Bar code reader  Keyboard Mouse Laser printer 	[1] [1]															
3	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;"></th><th style="width: 15%; text-align: center;">True</th><th style="width: 15%; text-align: center;">False</th></tr> </thead> <tbody> <tr> <td>Dot matrix printers produce high quality output</td><td></td><td style="text-align: center;">✓</td></tr> <tr> <td>Laser printers are very noisy</td><td></td><td style="text-align: center;">✓</td></tr> <tr> <td>Graph plotters are used when extremely large hard copy is required</td><td style="text-align: center;">✓</td><td></td></tr> <tr> <td>Inkjet printers are used where continuous stationery is required</td><td></td><td style="text-align: center;">✓</td></tr> </tbody> </table>		True	False	Dot matrix printers produce high quality output		✓	Laser printers are very noisy		✓	Graph plotters are used when extremely large hard copy is required	✓		Inkjet printers are used where continuous stationery is required		✓	[1] [1] [1] [1]
	True	False															
Dot matrix printers produce high quality output		✓															
Laser printers are very noisy		✓															
Graph plotters are used when extremely large hard copy is required	✓																
Inkjet printers are used where continuous stationery is required		✓															
4 (a) (b) (c) (d)	A mouse A bank cheque A memory stick A microphone	[1] [1] [1] [1]															
5	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;"></th><th style="width: 15%; text-align: center;">True</th><th style="width: 15%; text-align: center;">False</th></tr> </thead> <tbody> <tr> <td>RAM is not volatile</td><td></td><td style="text-align: center;">✓</td></tr> <tr> <td>ROM is used to store the BIOS of a computer</td><td style="text-align: center;">✓</td><td></td></tr> <tr> <td>The data in ROM is easier to change than that in RAM</td><td></td><td style="text-align: center;">✓</td></tr> <tr> <td>RAM is used to store the data the user is currently working on</td><td style="text-align: center;">✓</td><td></td></tr> </tbody> </table>		True	False	RAM is not volatile		✓	ROM is used to store the BIOS of a computer	✓		The data in ROM is easier to change than that in RAM		✓	RAM is used to store the data the user is currently working on	✓		[1] [1] [1] [1]
	True	False															
RAM is not volatile		✓															
ROM is used to store the BIOS of a computer	✓																
The data in ROM is easier to change than that in RAM		✓															
RAM is used to store the data the user is currently working on	✓																
6	Triangle: 1 mark for a correct loop e.g. REPEAT 3, END REPEAT 1 mark for RIGHT 120 Backward sequence 1 mark for PENUP, BACKWARD 80, PENDOWN Square: 1 mark for a correct loop e.g. REPEAT 4, END REPEAT 1 mark for FORWARD 100 coming immediately after RIGHT 90 as given	[5]															

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

7		Health	Safety	
	Headaches caused by prolonged use	✓		[1]
	Trailing wires in a computer room		✓	[1]
	RSI though continual typing	✓		[1]
	Back problems through bad posture	✓		[1]
	Too many plugs in an electric socket		✓	[1]
	Drinking water whilst using a computer		✓	[1]
8	Producing utility bills			
	Paying for goods at an EFTPOS terminal		✓	[1]
	Making an airline booking		✓	[1]
	Producing monthly payrolls			
	Monitoring a patient's condition in a hospital		✓	[1]
	Reading data from bank cheques			
9 (a)	Four from ID number/Borrower number Photo of borrower Name Address Post code Email address Gender/Title Date of Birth Max. two from: Home Phone number Work Phone number Mobile Phone number			[4]

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

(b)	Four from: Data fills the screen Clearly defined input area for each record Appropriate spacing for each field Back button/arrow/previous record facility Forward button/arrow/next record facility Number of record is on screen Submit button/facility First record button/facility Last record button/facility 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 Exit button/return to homepage button/facility	[4]												
(c)	Double entry/data entered twice <u>computer</u> compares the two versions Visual checking/verification Typed in data is compared with original data	[1] [1] [1] [1]												
(d)	Three from Normal data is data which is within an acceptable range/ is usual for the situation Any example between 1 and 6 Extreme data is data which is at either end of a normal range of data Examples: 1, 6 Abnormal data is data which is outside the acceptable range/is of the wrong data type Example: any negative number or number greater than 6 or text example	[1] [1] [1] [1] [1] [1]												
(e)	<table><tr><td>Improvements can be made</td><td>✓</td></tr><tr><td>The hardware and software can be specified</td><td></td></tr><tr><td>Limitations of the system can be identified</td><td>✓</td></tr><tr><td>To see how many books are required</td><td></td></tr><tr><td>To make sure the user is satisfied with the system</td><td>✓</td></tr><tr><td>So that program coding can be written</td><td></td></tr></table>	Improvements can be made	✓	The hardware and software can be specified		Limitations of the system can be identified	✓	To see how many books are required		To make sure the user is satisfied with the system	✓	So that program coding can be written		[1] [1] [1]
Improvements can be made	✓													
The hardware and software can be specified														
Limitations of the system can be identified	✓													
To see how many books are required														
To make sure the user is satisfied with the system	✓													
So that program coding can be written														

Page 5	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

(f)	Technical Three from: Program listing Programming language Flowchart/algorithm List of variables File structure Purpose of the system/program Input format or example Output format or example Hardware requirements Software requirements Sample runs/test runs Known bugs/possible errors Validation rules User Three from: How to load software/run software/install software. How to save a file. How to search How to sort How to print How to add records How to delete/edit records Purpose of the system/program (only if not mentioned in technical documentation) Input format or example (only if not mentioned in technical documentation) Output format or example (only if not mentioned in technical documentation) Hardware requirements (only if not mentioned in technical documentation) Software requirements (only if not mentioned in technical documentation) Sample runs (only if not mentioned in technical documentation) Error messages (only if not mentioned in technical documentation) Error handling Tutorials Troubleshooting guide/Contact details/help line/FAQ	[3 max] [3 max]																
10	<table><tr><td>The customer types in the PIN</td><td>3</td></tr><tr><td>If the PIN and the number stored in the chip are the same go onto the next step</td><td>5</td></tr><tr><td>The customer's account is checked to see if it has sufficient funds</td><td>7</td></tr><tr><td>The card is inserted into the reader</td><td>1</td></tr><tr><td>The PIN number is compared with that stored in the chip</td><td>4</td></tr><tr><td>The transaction is authorized</td><td>8</td></tr><tr><td>The device checks if the card is valid</td><td>2</td></tr><tr><td>The supermarket computer contacts the customer's bank computer</td><td>6</td></tr></table>	The customer types in the PIN	3	If the PIN and the number stored in the chip are the same go onto the next step	5	The customer's account is checked to see if it has sufficient funds	7	The card is inserted into the reader	1	The PIN number is compared with that stored in the chip	4	The transaction is authorized	8	The device checks if the card is valid	2	The supermarket computer contacts the customer's bank computer	6	[1] [1] [1] [1] [1] [1] [1] [1]
The customer types in the PIN	3																	
If the PIN and the number stored in the chip are the same go onto the next step	5																	
The customer's account is checked to see if it has sufficient funds	7																	
The card is inserted into the reader	1																	
The PIN number is compared with that stored in the chip	4																	
The transaction is authorized	8																	
The device checks if the card is valid	2																	
The supermarket computer contacts the customer's bank computer	6																	
	[Total: 7]																	

Page 6	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

11 (a)	Six from: Interactive user screen appears Details of car type are entered Questions about engine problems are asked/on-board computer connected to expert system Answers to questions/engine problems are typed in Inference engine searches Searches the Knowledge base using the Rules (base) Suggested probabilities of faults are output In the form of a report to the mechanic/on screen output	[6]								
(b)	Two from: Medical diagnosis Mineral prospecting Chess games Plant identification Animal identification Tax advice Careers advice/guidance Insurance Drug efficacy	[2]								
12 (a)	<table><tr><td>Pressure sensor</td><td>✓</td></tr><tr><td>Proximity sensor</td><td></td></tr><tr><td>Temperature sensor</td><td>✓</td></tr><tr><td>Oxygen sensor</td><td></td></tr></table>	Pressure sensor	✓	Proximity sensor		Temperature sensor	✓	Oxygen sensor		[1] [1]
Pressure sensor	✓									
Proximity sensor										
Temperature sensor	✓									
Oxygen sensor										
(b)	Computers work in digital Sensors produce analogue data	[1] [1]								
(c)	Five from: Microprocessor continually monitors sensors Data is converted from analogue to digital/ADC is used Compares water level with pre-programmed value If water level reached microprocessor switches off valve Else valve left on/switched on Compares temperature with pre-programmed value If temperature higher microprocessor switches off heater Else heater left on/switched on Compares weight of clothes with pre-programmed value If clothes too heavy microprocessor sounds alarm/stops machine/motor stops running Else cycle continues/motor starts	[5]								

Page 7	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

	(d)	Four from: Microprocessor controlled devices do much of housework Do not need to do many things manually Do not need to be in the house when food is cooking Do not need to be in the house when clothes are being washed Can leave their home to go shopping/work at any time of the day Greater social interaction/more family time More time to go out/more leisure time/more time to do other things/work Are able to do other leisure activities when convenient to them Can lead to unhealthy eating due to dependency on ready meals Can lead to laziness/lack of fitness Can encourage a healthy lifestyle because of smart fridges analyzing food constituents	[4]												
13	(a)	Two from: Modem Router Or any other suitable answer	[2]												
	(b)	Five from: WAN is a wide area network WAN covers a large geographical area/worldwide The Internet is a WAN LAN is a Local Area Network LAN covers a small area such as one building/A school network is a LAN A WAN consists of connected LANs More difficult to share peripherals using a WAN	[5]												
14	(a)	4	[1]												
	(b)	5	[1]												
	(c)	Product type	[1]												
	(d)	Mupe	[1]												
	(e)	Bar code	[1]												
	(f)	Range check Two from: Values less than 0 (or 'lower limit') or more than an upper limit Will be rejected/not allowed/must be within A correct example can be awarded both marks	[1] [2]												
15		<table><tr><td>Graph plotter</td><td></td></tr><tr><td>Trackerball</td><td></td></tr><tr><td>Microphone</td><td>✓</td></tr><tr><td>Speakers</td><td>✓</td></tr><tr><td>Optical mark reader</td><td></td></tr><tr><td>Web cam</td><td>✓</td></tr></table>	Graph plotter		Trackerball		Microphone	✓	Speakers	✓	Optical mark reader		Web cam	✓	 [1] [1] [1]
Graph plotter															
Trackerball															
Microphone	✓														
Speakers	✓														
Optical mark reader															
Web cam	✓														

Page 8	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2009	0417	01

16	Three from User ID/Passwords/PIN User ID/Password/PIN entered is compared with that held on system/never tell anyone your password/regularly change password/make it not easy to guess/only person who knows password can access account Encryption Data is scrambled up/key must be known to unscramble it/prevents people from understanding data Firewall Prevents unauthorised users/computers from accessing network Digital certificates Transactions are digitally signed/authenticated/transaction is linked to the PC being used to carry out online banking Anti Spyware Prevents spyware from invading your computer and gaining personal information Make sure website is secure Locked padlock is present on display	[1] [1] [1] [1] [1] [1] [1] [1] [1] [1]
	[Total: 6 max]	
17	Eight from: Drawbacks: Not all information is accurate Some information is purely for advertising/selling purposes Might need proxy server to prevent access to certain types of site Some information is pornographic Anyone can put information on the Internet Much of the information on the Internet is not filtered Need to identify the validity of the author Need to be careful about whether information is fact or opinion Information can be biased Results from search engine could be skewed because of sponsorship/marketing Internet is not policed So much information available which might be unreliable Benefits: Wide range of information to select (desirable/reliable information) Able to search quickly (using search engines) to find (reliable/desirable) information Information can be downloaded and edited (to make it desirable/reliable) Can use the final part of a URL to identify reliability Information can be up to date/real time so reliable .ac, .gov, .org are usually fairly reliable Can compare information from sites to see if it is reliable	[8]