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

A	B	C	D
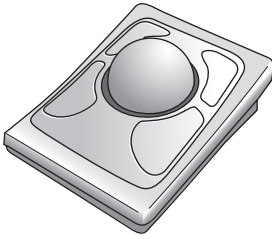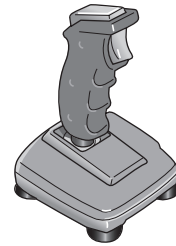
Digital camera	**Joystick**	**Light pen**	**Remote control**
Scanner	**Touch pad**	**Trackerball**	**Web cam**

A   ....   B   ....

C   ....   D   ....

[4]

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

Buzzer	**DVD RAM**	**Joystick**
Magnetic tape	**Plotter**	**Touch pad**

[2]

3   Tick **TRUE** or **FALSE** next to each of these statements.

	TRUE	FALSE
A number pad is used to enter a PIN		
Presentation software is used to write letters		
Database software is used to create queries		
A Graphical User Interface uses icons to represent applications		
Sensors are used to store data		

[5]

4 Tick whether each of the following is a method of validation or verification.

	Validation	Verification
A computer comparing two versions of the data		
Using check digits		
Applying a length check		
Performing a range check		
Typing in data twice		
Visually comparing data on screen with the original data source		

[6]

5 A desktop computer is already used in an office which does not have an internet connection.

(a) Name **two** items of hardware which could enable the computer to be connected to a network.

1 ....

2 .... [2]

(b) Name **one** item of hardware which would enable the network to be connected to the internet.

.... [1]

6 A school keeps records of every student including details of their names, addresses, phone numbers and dates of birth. Using this information, define the terms file, field and record.

File ....

....

Field ....

....

Record ....

.... [3]

4

7   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

45°

100 mm

start
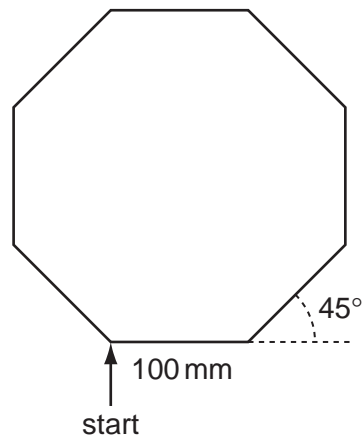
Complete the set of instructions to draw this shape by filling in the blank lines.

PEN DOWN

90

....

REPEAT   ....

FORWARD   ....

LEFT   ....

....

[5]

8 Describe the batch processing of bank cheques.

....

....

....

....

....

....

.... [4]

9 Multi-national companies often use video conferencing rather than face to face meetings.

(a) Give **three** advantages of video conferencing.

Advantage 1 ....

....

Advantage 2 ....

....

Advantage 3 ....

.... [3]

(b) Give **three** disadvantages of video conferencing.

Disadvantage 1 ....

....

Disadvantage 2 ....

....

Disadvantage 3 ....

.... [3]

10

Make and model	Number sold	Air conditioning (Y/N)
Ford Mondeo	45	Y
Opel Corsa	52	N
BMW Series X	35	N
Nissan Micra	39	N

A car showroom uses a database to store information about the cars it has sold. Part of this database is shown above.

(a) (i) Which field stores Boolean data?

....

(ii) Give one reason why this data type is used.

....

.... [2]

(b) (i) Which field stores numeric data?

....

(ii) Give one reason why this data type is used.

....

.... [2]

11 Describe the differences between RAM and ROM.

....

....

....

....

....

....

.... [4]

12 Doctors often use expert systems to diagnose illnesses of patients. Describe how expert systems are used in this process.

....

....

....

....

....

....

....

.... [4]

13 A student wishes to store data on an optical storage medium. List **two** optical media and give **one** advantage and **one** disadvantage of using optical media when compared with fixed hard discs.

Optical medium 1 ....

....

Optical medium 2 ....

....

Advantage ....

....

Disadvantage ....

.... [4]

14 A large company has a LAN. The manager of the company wants to replace it with a WLAN. Explain the differences between a LAN and a WLAN, giving an advantage and a disadvantage of a WLAN.

....

....

....

....

....

....

....

.... [4]

15 Computers can cause health problems. Identify **two** of these problems and for each problem write down a method which would help you avoid it. Do not use the same method for both answers.

Problem 1 ....

....

Method 1 ....

....

Problem 2 ....

....

Method 2 ....

.... [4]

16 In online banking data can be misused by hackers. Name **three** types of security measure which can be used to help to prevent this. For each one give an advantage and a disadvantage.

Measure 1 ....

....

Advantage ....

....

Disadvantage ....

....

Measure 2 ....

....

Advantage ....

....

Disadvantage ....

....

Measure 3 ....

....

Advantage ....

....

Disadvantage ....

.... [9]

17 A systems analyst has been asked by a school librarian to update the computer system she uses to keep records about her books.

(a) The systems analyst must first of all collect information about the existing system. Describe **three** methods which could be used to collect this information.

1 ....

....

2 ....

....

3 ....

.... [3]

(b) The systems analyst must now produce a screen input form which the librarian could use for typing in each book's details. Design a suitable screen input form to enter the details of **one** book. It should contain appropriate spacing for each field, as well as navigation aids.

[5]

(c) Name **three** methods which would be used in a library to input data about books or borrowers.

1 ....

....

2 ....

....

3 ....

.... [3]

18 A new computer system storing examination results out of 100 is to be tested using a range of test data. For each item of test data below, name the type of test data used, explaining your choice. Use each type once only.

(a) 65 ....

....

....

.... [2]

(b) 100 ....

....

....

.... [2]

(c) 121 ....

....

....

.... [2]

19 When a new system is implemented, documentation is provided with it. Identify the **two** different types of documentation produced and name **two** different components in each.

Type 1 ....

    Component 1 ....

    ....

    Component 2 ....

    ....

Type 2 ....

    Component 1 ....

    ....

    Component 2 ....

    .... [6]

20 A student wishes to use the internet in order to research a topic. Discuss how the student can assess the reliability and bias of a website.

....

....

....

....

....

....

....

....

....

....

.... [6]

Shared by Mr. Mukalele Rogers www.rmukalele.hpage.com

Ques. No.	Answer				Part mark

1

A	Trackerball	**B**	Digital camera	1, 1
C	Light pen	**D**	Joystick	1, 1

2

⟨buzzer⟩	DVD RAM	joystick	1
magnetic tape	⟨plotter⟩	touch pad	1

3

	True	False	
A number pad is used to enter a PIN	✓		1
Presentation software is used to write letters		✓	1
Database software is used to create queries	✓		1
A Graphical User Interface uses icons to represent applications	✓		1
Sensors are used to store data		✓	1

4

	Validation	Verification	
A computer comparing two versions of the data		✓	1
Using check digits	✓		1
Applying a length check	✓		1
Performing a range check	✓		1
Typing in data twice		✓	1
Visually comparing data on screen with the original data source		✓	1

5 (a)

Two from:
Switch
Network card
Hub

2

(b)

One from
Router
Modem

1

6

A **file** is a collection of records/all the students names, addresses, phone numbers and dates of birth

1

A **field** is one item of information/name/address/phone number/date of birth

1

A **record** is all the information about one student/name, address, phone number and date of birth of one student

1

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7	**RIGHT** *90* *REPEAT* **8** *FORWARD* **100** *LEFT* **45** **END REPEAT** 1 mark for each correct statement	5
8	**Four** from: Cheques are collected together During the course of the day Cheques are then processed all at once Cheques are processed overnight Bank accounts updated following morning No human intervention	4
9 (a)	**Three** from: Workers can use own office so documents do not get lost in transit/bulky documents/equipment do not have to be carried around Company can call meeting at short notice Employees can work from home Company does not have to pay travelling expenses Company does not have to pay hotel expenses Company does not have to pay for conference room facilities Travelling time is saved Might be dangerous to fly/travel Disabled people may find it difficult to travel	3
(b)	**Three** from: Takes time to train employees Difficult to call international meetings because of time differences Initial cost of hardware Equipment can break down Strength of signal/bandwidth/lipsync can be a problem/connection can be lost/ power cuts Loss of personal/social contact Takes time for workers to learn new technology Can't sign documents	3
10 (a) (i)	Air conditioning (Y/N)	1
(ii)	**One** from The field only contains Y or N (two possibilities) It saves time entering data It reduces errors when inputting data It's easier to validate It saves storage space for the file	1
(b) (i)	Number sold	1
(ii)	**One** from: Might need to calculate total of all cars sold Easier to validate Might need to produce a graph Can easily find best selling make	1

11	**Four** from: ROM cannot be changed/RAM can be changed RAM can be read from and written to ROM is read only memory and RAM is random access memory ROM holds instructions that need to be unchanged such as BIOS/program cycles in a washing machine/program instructions in games RAM holds the work that is being currently done by the user ROM is non-volatile/RAM is volatile	**4**
12	**Four** from: Symptoms are entered Uses interactive interface/Asks questions... … based on previous responses Expert system analyses data Inference engine compares symptoms Compares with those held in knowledge base… … uses rules base Matche**s** are found Suggests probabilities/possible diagnoses	**4**
13	**Two** devices from: CD DVD Blu-ray DVD RAM **One** advantage from: More portable/less likely to spike/cheaper to buy **One** disadvantage: Limited capacity/slower access times/slower transfer rates/can be more easily lost/can be more easily stolen/can be more easily scratched	**2** **1** **1**
14	LAN uses cables to transmit data WLAN uses wireless technology **Advantage** Cheaper as less cabling/new workstations can be sited anywhere/different devices can be connected easily **Disadvantage** Slower transfer rates/limited transmission distance/physical obstacles can limit transmission/less security	**1** **1** **1** **1**

15	**Two** problems from: Headaches (from staring at screen continuously) Eyestrain (from staring at screen continuously) RSI in fingers (from continual typing/repetitive clicking of mouse) RSI in wrists (from continual typing/repetitive clicking of mouse) Backache from sitting in same position all day **Two** matching methods from: Use anti-glare screen (headaches/eyestrain) Take regular breaks (all) Use ergonomic keyboard (RSI) Use wrist rests (RSI) Use straight backed chair/maintain good posture (backache)	**4**

16	**Three** matched triples from:	
	Authentication technique/User ID and Passwords/PIN/memorable data **Advantage** Only person who knows password can access data **Disadvantage** Key logging software can detect key presses/passwords can be intercepted by expert hackers/user can forget password	
	Encryption **Advantage** Data is scrambled into unreadable form/only person/computer with key can understand data **Disadvantage** Data can still be deleted from system	
	Firewall **Advantage** Only allowed users/computers can access data **Disadvantage** It is not necessarily the hacker that is excluded but the computer/hackers might use an acceptable computer	
	Digital certificates **Advantage** Only computer with certificate can access data **Disadvantage** Can be expensive to purchase	
	Anti Spyware **Advantage** Prevents spyware from invading your computer and gaining personal information **Disadvantage** Doesn't work for all invasions/needs to be continually updated	
	TANs **Advantage** Is a double layer of security **Disadvantage** PIN can be forgotten/if misused can generate wrong TAN	
	Award one mark for name and one for an advantage and one for a disadvantage up to a maximum of three marks for each triple answer	**9**

17 (a)	**Three descriptions** from: Observing the librarian/students/teachers using the current system Questionnaires are distributed to librarian/students/teachers asking questions about the current system Interviewing the librarian/students/teachers asking questions about the current system Examining documents from the current system	**3**
(b)	Appropriate spacing for each field Forward and backward buttons Title Author's name Reference number/ISBN/Publisher/Picture of cover/Dewey number/Genre or category/fiction or non-fiction/target age group/picture of author/date published/summary of contents/no. of copies/cost price/selling price/ number of pages/hardback or softback Information fills the page AND is clearly a screen form **Maximum of five marks**	**1** **1** **1** **1** **2 marks for 4 items, 1 for 3 items else 0** **1**
17c	**Three** from: Keyboard to type in data A bar code (reader) A magnetic stripe (reader) Touch screen Biometric methods RFID	**3**
18 (a)	Normal data Data is between 0 and 100/within the given range	**1** **1**
(b)	Extreme data Data is on the boundary of given range	**1** **1**
(c)	Abnormal data Data is outside the given range	**1** **1**

19	Technical	1
	Two 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	2
	User	1
	Two from:	
	How to load software/install/run 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	
	Error handling	
	Tutorials	
	Troubleshooting guide/Contact details/help line/FAQ	
		2
20	**Six** from:	
	Does site have excessive advertising	
	Is the advertising related only to its own products	
	Can use the final part of a URL to identify reliability	
	.ac, .gov, .org are usually fairly reliable	
	Can compare information from reliable sites to see if it is reliable	
	Can compare with information from reliable/authenticated/text books	
	Is site endorsed	
	Does it have links to other reliable sites/unreliable sites	
	Does it have testimonials	
	See if responsible bodies have endorsed the site	
	Check the date of the last update	
	Are there links to and from the website to and from well known reliable websites?	
	Checking the author's credentials	6