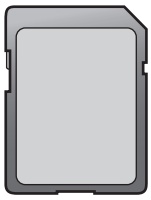
1 Name the items **A**, **B**, **C** and **D** using the words from the list.

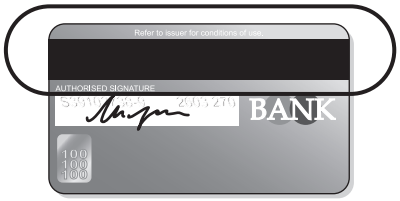
For Examiner's Use

A

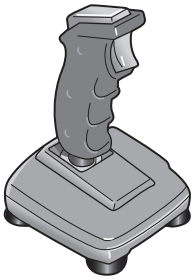


B

C



D



digital camera	**flash memory card**	**joystick**	**magnetic disc**
magnetic stripe	**scanner**	**touch pad**	**web cam**

A ..... B .....

C ..... D .....

[4]

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

CRT monitor	**DVD ROM**	**magnetic tape**
number pad	**plotter**	**trackerball**

[2]

For Examiner's Use

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

	True	False
Control software is used to create slide shows.		
Palmtop computers do not have internal DVD drives.		
Presentation software can be used to produce databases.		
An internet browser uses an inference engine.		
Motors are output devices.		

[5]

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

A bar code reader **A dot matrix printer** **A graphics tablet**

A laser printer **A microphone** **A multimedia projector**

A presence check **A speaker** **A temperature sensor**

A magnetic tape

(a) ..... produces hard copy in harsh conditions.

(b) ..... inputs sounds.

(c) ..... is used to show slideshows.

(d) ..... is a validation rule.

(e) ..... is used to create backups from a server's hard disc.

[5]

For Examiner's Use

5 The head teacher of a school wants to build a weather station. She wants to use a computer to collect the results.
List **three** sensors that would be needed.

1 .....

2 .....

3 ..... [3]

6 Draw **four** lines on the diagram to match the use to its most **appropriate** input device.

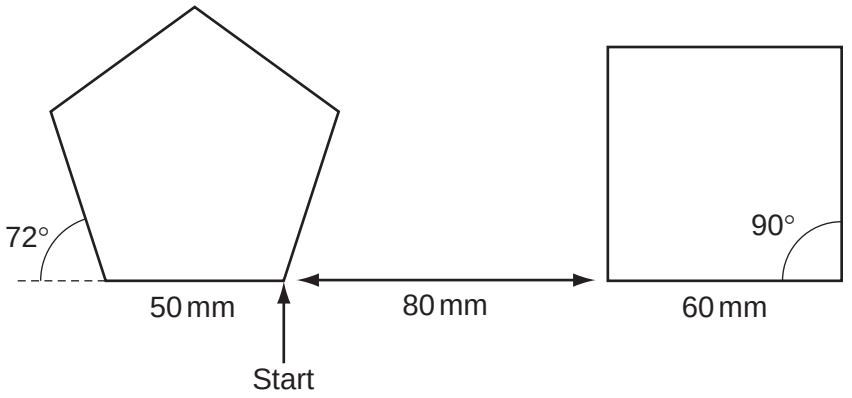
Use	Input device
to select options from a list	**keyboard**
to type data into a database	**optical mark reader**
to input candidate examination answers	**chip reader**
to input data directly from a bank card	**mouse**

[4]

7 A floor turtle can use the following instructions:

For Examiner's Use

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



NOT TO SCALE

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

PENDOWN

..... 90

REPEAT .....

..... 50

RIGHT .....

.....

PENUP

BACKWARD .....

PENDOWN

..... 4

FORWARD .....

..... 90

.....

[8]

For Examiner's Use

8 Tick **True** or **False** next to each statement describing encryption.

	True	False
Encryption prevents hackers from understanding the data.		
Encryption destroys viruses.		
Encryption prevents unauthorised access to computer systems.		
Encryption is the scrambling of data.		

[4]

9 A group of car mechanics wants to have an expert system to help them with their work in diagnosing car engine faults.
Describe how such a system would be created.

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..... [5]

10 Describe online processing of data, using the booking of airline tickets as an example.

For Examiner's Use

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..... [4]

11 A manager of a new company has just purchased some computers. She wishes to connect these computers together to form a LAN.
Name and describe **three** network devices she might need to have in order to achieve this.

Device 1 .....

Description .....

.....

Device 2 .....

Description .....

.....

Device 3 .....

Description .....

..... [6]

For Examiner's Use

12 Chi has asked Toby, a systems analyst, to create a new database system for his property agency in France. He only deals with apartments and houses. Here are some of the questions customers ask:

Have you got a house for less than €500 000?
Have you got an apartment with three bedrooms?
Have you got a house with more than 160 square metres floor space?

(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
	Integer
Price	

[6]

(b) Compare and contrast parallel running and direct changeover as ways of implementing the new database system.

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..... [5]

For Examiner's Use

13 A teacher has developed a new system for keeping a record of student examination marks on her laptop and wishes to test it. Each examination is marked out of 50.
Identify **three** types of test data she could use and describe each type using an example.

Type 1 .....

Description .....

.....

Type 2 .....

Description .....

.....

Type 3 .....

Description .....

..... [6]

14 Schools are concerned with the possibility that students are using the schools' internet connections to access undesirable sites.
Name and describe **two** security methods the schools could use to prevent this from happening.

Method 1 .....

Description .....

.....

Method 2 .....

Description .....

..... [4]

15 Paul, a manufacturer of goods, offers discounts. The discounts are coded D, N or P. Paul keeps the details on this spreadsheet.

For Examiner's Use

(Commas are used as delimiters in the formulae shown below.)

	A	B	C	D
1	Code	Rate		
2	D	10%		
3	N	15%		
4	P	20%		
5				
6	Code	Price	Discount	Discounted Price
7	D	$4.00	=IF(A7="D",B7*B2,IF(A7="N",B7*B3,IF(A7="P",B7*B4)))	
8	P	$2.85	=IF(A8="D",B8*B2,IF(A8="N",B8*B3,IF(A8="P",B8*B4)))	
9	D	$1.55	=IF(A9="D",B9*B2,IF(A9="N",B9*B3,IF(A9="P",B9*B4)))	
10	N	$0.98	=IF(A10="D",B10*B2,IF(A10="N",B10*B3,IF(A10="P",B10*B4)))	
11	D	$4.05	=IF(A11="D",B11*B2,IF(A11="N",B11*B3,IF(A11="P",B11*B4)))	
12	D	$10.00	=IF(A12="D",B12*B2,IF(A12="N",B12*B3,IF(A12="P",B12*B4)))	
13	P	$11.95	=IF(A13="D",B13*B2,IF(A13="N",B13*B3,IF(A13="P",B13*B4)))	
14	D	$5.15	=IF(A14="D",B14*B2,IF(A14="N",B14*B3,IF(A14="P",B14*B4)))	
15	D	$5.25	=IF(A15="D",B15*B2,IF(A15="N",B15*B3,IF(A15="P",B15*B4)))	
16	N	$4.50	=IF(A16="D",B16*B2,IF(A16="N",B16*B3,IF(A16="P",B16*B4)))	
17	N	$7.25	=IF(A17="D",B17*B2,IF(A17="N",B17*B3,IF(A17="P",B17*B4)))	
18	N	$14.50	=IF(A18="D",B18*B2,IF(A18="N",B18*B3,IF(A18="P",B18*B4)))	

(a) Explain what the formula in cell C7 does.

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..... [6]

(b) What value would you expect to see in cell C12?

..... [1]

(c) The formula was entered into cell C7 using a keyboard.
Explain how to make this formula appear in cells C8 to C18 by just using a mouse.

For Examiner's Use

.....

.....

.....

.....

.....

..... [3]

(d) What formula should be typed into cell D7 to calculate the discounted price?

..... [1]

(e) Paul could extend this spreadsheet to calculate his total profit. He could then use it as a model.
Give **two** reasons why financial models are used.

1 .....

.....

2 .....

..... [2]

16 Describe **four** features of a graphical user interface (GUI).

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

..... [4]

17 A head teacher wishes to publicise school activities to make his school better known in the neighbourhood. He could do this by using the school's website or producing a magazine using DTP to be delivered by hand.
Discuss the advantages and disadvantages of each method.

For Examiner's Use

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..... [6]

18 Robots are now used on many car production lines.
Describe how their use has affected the nature of employment in the car industry.

For Examiner's Use

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..... [6]

1 A Flash memory card [1]
B Magnetic disc [1]
C Magnetic stripe [1]
D Joystick [1]

2 (CRT monitor) DVD ROM magnetic tape [1]

Number pad (plotter) trackerball [1]

3

	True	False
Control software is used to create slide shows		✓
Palmtop computers do not have DVD drives	✓	
Presentation software can be used to produce databases		✓
An internet browser uses an inference engine		✓
Motors are output devices	✓	

[5]

4 **(a) A dot matrix printer** produces hard copy in harsh conditions. [1]

(b) A microphone inputs sounds. [1]

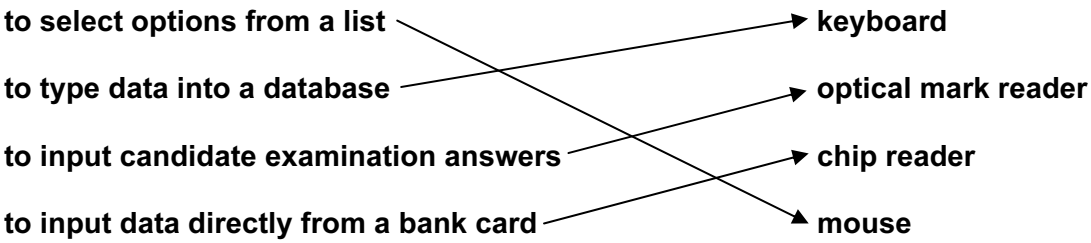
(c) A multimedia projector is used to show slideshows. [1]

(d) A presence check is a validation rule. [1]

(e) A magnetic tape is used to create backups from a server's hard disc. [1]

5 **Three** from:
Temperature sensor
Pressure sensor
Moisture sensor
Humidity sensor
Light sensor
Motion sensor [3]

6



[4]

7

PEN DOWN		BACKWARD	**140**
LEFT	90	PENDOWN	
REPEAT	**5**	**REPEAT**	4
FORWARD	50	FORWARD	**60**
RIGHT	**72**	**RIGHT**	90
END REPEAT		**END REPEAT**	
PENUP			

One mark for every line except the square then one mark per two instructions [8]

8

	True	False
Encryption prevents hackers from understanding the data	✓	
Encryption destroys viruses		✓
Encryption prevents unauthorised access to computer systems		✓
Encryption is the scrambling of data	✓	

[4]

9 **Five** from:
Data is gathered/collected from experts
Knowledge base is designed/created
A structure to relate each item in the database / knowledge base is created
An interrogation technique to access the data is created
A user interface/method of displaying the results/method of inputting data/ input screen/output screen is designed/created
The inference engine is designed/created
The rules base is designed/created
The system is tested [5]

10 **Four** from:
User/customer is in direct contact with the main computer/CPU
Appears that nobody else can access system at that point/processing is almost immediate
Computer asks customer for details of flight
Computer asks for personal details of passengers
Computer searches for matching flights
Computer may display list of seats available
Computer may ask customer to select a seat
(Customer selects seat from those available and) computer flags seat as booked
Computer asks customer to complete payment details
Computer checks details are valid by communicating with customer's bank
Computer checks if sufficient funds
Airline's database is updated immediately
Number of seats available reduces by number booked
Prevents double booking
Confirmation/e-ticket may be sent to customer by email [4]

11 **Three** matched pairs from:

Hub
Broadcasts data packets to computers in a LAN

Switch
Directs data to specific computers

Bridge
Connects two LANs together to form a larger LAN/Directs data packets to specific networks

NIC
Enables computer to be connected to a network [6]

12 **(a)**

Number of bedrooms	integer
Price	***currency***
Property Type	***Boolean***
Floor space/area	***numeric***

1 mark for each correctly filled gap [6]

(b) **Five** from:
Parallel running is running the old and new system together
Direct changeover is stopping the old system and starting the new one immediately
Parallel running is more expensive to implement than direct changeover....
....more expensive as two sets of workers have to be employed
Benefits of direct changeover are immediate whereas this is not the case with parallel running.
Parallel running is slower to implement
If new system fails there is no backup system with direct changeover but there is with parallel running
With parallel running training can be gradual unlike direct changeover which is difficult to organise [5]

13 **Three** matched pairs from:

Normal
Within a given range such as 30 out of 50

Abnormal outside the given range or of wrong data type such as 56 out of 50 or 'sixty'

Extreme
At the boundaries of the given range e.g. 0 or 50 [6]

14 **Two** matched pairs

Proxy server
The proxy server can restrict the web sites students can access/can block access to sites with objectionable material

Firewall
Limits the computers (using IP address) that can access the system/that can be accessed from within the school

Applying parental guidance settings.
Can block undesirable topics [4]

15 **(a)** **Six** from:
Checks to see if the value of A7 is "D"
If it is, the value in B7/4.00 is multiplied by the value in B2/10%
If it isn't, checks to see if the value in A7 is "N"
If it is, the value in B7/4.00 is multiplied by the value in B3/15%
If it isn't, checks to see if the value in A7 is "P"
If it is, the value in B7/4.00 is multiplied by the value in B4/20%
If it isn't, "FALSE" is generated
A7 contains "D"
In this example answer is $4.00 x 10%/ answer is $0.40 [6]

(b) $1.00 [1]

(c) **Three** from:
Clicked on C7 and manoeuvred to bottom right hand corner of cell
Until black cross appears
Black cross dragged down to C18

Or **three** from:

Right clicked on C7 select copy from menu
Selected C8 to C18
Right click and click on paste

Highlight cells C7 to C18
Click on Fill
Click on down [3]

(d) = b7 – c7 [1]

(e) **two** from:
can see what will happen without spending a lot of money
results can be seen in a shorter space of time
you can ask many whatif questions which would be impractical in real life
Easier to change data/variables
You can test predictions more easily/model can make predictions more accurately [2]

16 Window – an area on the screen that displays information for a specific program. [1]

Icon represents a folder or a program – can be seen within a window or freestanding on screen [1]

Menus – contains lists of options for a certain program/software [1]

Pointing device/Pointer – used to select menu options/icons/close/open windows [1]

17 **Six** from:
Advantages of DTP
Can be sure every local family gets to see it
Not everybody has a computer/internet/modem
Can read it anywhere/not limited to where computer is.

Disadvantages of website
Can't be sure every local family gets to see it
Not everybody has a computer/internet/modem
Can't read it anywhere/ limited to where computer is.

Disadvantages of DTP
Takes time to physically distribute by hand
Might need to pay somebody to distribute by hand
Costs of ink/paper/printing
Not as easy to update
Not interactive/hyperlinks
No animation/video
No sound

Advantages of website
No costs of ink/paper/printing
Easier to update
Interactive/hyperlinks
Animation/video
Sound

Allow one mark for a reasoned conclusion

18 **Six** from:
Car workers have been made unemployed
Car workers have had to be retrained
Car workers have become deskilled
More technical staff have been employed
Work areas are cleaner
There is a healthier environment
Workers have a safer environment
Fewer manual tasks [6]