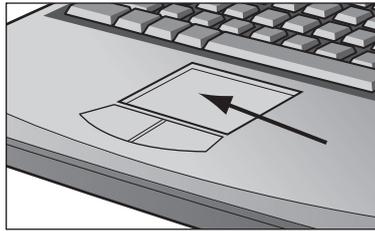


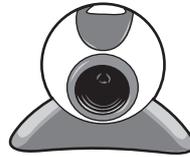
1 Name the input devices **A**, **B**, **C** and **D** using the words from the list.



Light pen



Microphone



Numeric keypad



Remote control

Scanner

Touch pad

Trackerball

Web cam

A

B

C

D

[4]

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

Bar code reader

DVD RAM

Joystick

Magnetic tape

Sensor

Touch screen

[2]

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

	TRUE	FALSE
DTP software can be used with sound files.		
Measurement software is used to send emails.		
Spreadsheet software is used to create models.		
A command line interface can be used to communicate with a computer.		
PDA's are usually bigger than laptops.		

[5]

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

A chip reader

A digital camera

A graph plotter

A graphics tablet

A joystick

A laser printer

A multimedia projector

An optical mark reader

A temperature sensor

A TFT monitor

- (a) is used to send data to a microprocessor controlled cooker.
- (b) is used to read details from a bank card.
- (c) is used to control a car driving simulator.
- (d) is used to take photographs for inclusion in a web site.
- (e) is used to input data from a school register.

[5]

5 Tick **three** items of software which a PC connected to the internet might use.

	✓
A modem	
A virus scanner	
An email package	
Another PC	
A browser	
A keyboard	

[3]

6 A school has a database which includes details of every student. Tick whether the following statements refer to a file, a field or a record.

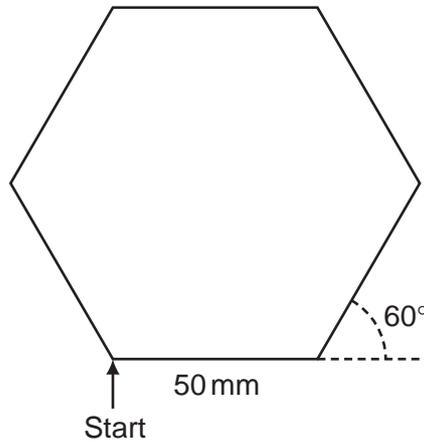
	Field	File	Record
All the information about one student.			
One piece of information about each student.			
A primary key.			
All the information about all the students.			

[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



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

```

PEN DOWN
..... 90
REPEAT .....
FORWARD .....
..... 60
.....
    
```

[5]

- 8 Tick **TRUE** or **FALSE** next to each statement to indicate if it is an example of online processing.

	TRUE	FALSE
Computerised booking of a theatre ticket.		
Clearing cheques overnight.		
Paying at a supermarket using Electronic Funds Transfer.		
Printing monthly credit card bills.		

[4]

- 9 Multi-national companies often use video conferencing instead of face-to-face meetings.

- (a) Tick **three** advantages of video conferencing.

	✓
Companies don't have to employ so many workers.	
Companies can call meetings at short notice.	
Employees don't have to prepare for meetings.	
Companies do not have to pay travelling expenses.	
Employees can work from home.	
Companies don't have to have any offices.	

[3]

- (b) Tick **three** disadvantages of video conferencing.

	✓
It is difficult to call international meetings because of time differences.	
Employees can't see the documents which are being discussed.	
The initial cost of hardware can be expensive.	
There is a loss of personal and social contact.	
Companies are unable to contact the employees about having a conference.	
Companies have to hire expensive halls.	

[3]

10 Write down the most suitable data type for each item of data in the table below.

Registration number	Day/Month/Year of manufacture	Doors	Air conditioning (Y/N)
KAC 758F	12/10/1991	4	Y
KAR 815P	03/06/2005	5	N
KAB 179A	05/08/1990	5	N
KAP 613Y	11/08/2004	3	N

Registration number

Day/Month/Year of manufacture

Doors

Air conditioning

[4]

11 All computers come with main memory as well as backing storage. Give a reason why the following are needed.

RAM

.....

ROM

.....

Backing storage

.....

[3]

For
Examiner's
Use

12 Car mechanics often use expert systems to diagnose faults with car engines. List **four** parts of an expert system.

- 1
- 2
- 3
- 4 [4]

13 Draw **four** lines on the diagram to match the use to its most **appropriate** storage medium.

Use	Storage medium
storing data in online applications	DVD ROM
to store data that cannot be changed	Fixed hard disc
saving work and transporting it to other computers	Magnetic tape
taking backups of file servers	Pen drive

[4]

14 (a) Give **two** uses of ICT devices which, when prolonged, can cause RSI.

- 1
-
- 2
- [2]

(b) Identify **two** safety issues and how they are caused.

- 1
-
- 2
- [2]

15 A large company has two separate sites both of which have a LAN. The manager of the company wants to connect the LANs to form a WAN.

(a) Name **three** network devices which could be found in a LAN that is not connected to a WAN.

- 1
- 2
- 3 [3]

(b) The manager wants to buy a router to connect the LANs. Describe the function of a router.

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

(c) The company's workers are concerned that their data may not be secure. Name **three** authentication techniques and for each one explain how it will help to prevent illegal access to the data.

- 1
 - 2
 - 3
- [6]

18 Aysha needs to enter customer details into her company's database. She has asked her friend Ali to design an input screen to enable her to do this. She is not pleased with his attempt.

For
Examiner's
Use

Name _____

Address _____

Date of birth ____ / ____ / _____

Customer ID _____

Type in male or female _____

Type in **next** for next record or **back** for previous record _____

(a) Describe **five** improvements which could be made to this screen.

- 1
 - 2
 - 3
 - 4
 - 5
- [5]

(b) The new system will be tested. The month part of the date of birth field must be a whole number between 1 and 12 inclusive. Using this as an example, describe the following three types of test data.

(i) Abnormal data
.....
.....
..... [2]

(ii) Normal data
.....
.....
..... [2]

(iii) Extreme data
.....
.....
..... [2]

19 Describe **three** actions which might need to be taken as a result of testing a system.

1
.....
2
.....
3
..... [3]

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Accept answers which have been crossed out UNLESS they've been replaced
 Mark first answer only except if other answer spaces have been left blank
 Do not accept generalised terms such as quicker/cheaper/more efficient unless qualified

- 1 A Remote control (1)
 B Touch pad (1)
 C Web cam (1)
 D numeric keypad (1) [4]

- 2 bar code reader **DVD RAM (1)** joystick
magnetic tape (1) sensor touch screen [2]

3

	True	False	
DTP software can be used with sound files		✓	(1)
Measurement software is used to send emails		✓	(1)
Spreadsheet software is used to create models	✓		(1)
A command line interface can be used to communicate with a computer	✓		(1)
PDA's are usually bigger than laptops		✓	(1)

[5]

- 4 (a) A temperature sensor is used to send data to a microprocessor controlled cooker [1]
 (b) A chip reader is used to read details from a bank card [1]
 (c) A joystick is used to control a car driving simulator [1]
 (d) A digital camera is used to take photographs for inclusion in a web site [1]
 (e) An optical mark reader is used to read data from a school register [1]

5

A modem		
A virus scanner	✓	(1)
An email package	✓	(1)
Another PC		
A browser	✓	(1)
A keyboard		

[3]

6

	Field	File	Record	
All the information about one student			✓	(1)
One piece of information about the students	✓			(1)
A primary key	✓			(1)
All the information about all the students		✓		(1)

[4]

7 **RIGHT** 90
REPEAT 6
FORWARD 50
LEFT 60
END REPEAT

1 mark for each correct statement

[5]

8

	True	False	
Computerised booking of a theatre ticket	✓		(1)
Clearing cheques overnight		✓	(1)
Paying at a supermarket using Electronic Funds transfer	✓		(1)
Printing monthly credit card bills		✓	(1)

[4]

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9 (a)

Companies don't have to employ so many workers		
Companies can call meetings at short notice	✓	(1)
Employees don't have to prepare for meetings		
Companies do not have to pay travelling expenses	✓	(1)
Employees can work from home	✓	(1)
Companies don't have to have any offices		

[3]

(b)

It is difficult to call international meetings because of time differences	✓	(1)
Employees can't see the documents which are being discussed		
The initial cost of hardware can be expensive	✓	(1)
There is a loss of personal and social contact	✓	(1)
Companies are unable to contact the employees about having a conference		
Companies have to hire expensive halls		

[3]

10 (a) **Registration number** – Alphanumeric/Text (1)

Day/Month/Year of Manufacture – Date (1)

Doors – Numeric/integer (1)

Air conditioning – Boolean/logical (1)

[4]

11 **RAM** – So that users are able to make changes to the data they are working on/to store the program or data they are currently using (1)

ROM – So that programs/coding/software can be stored permanently/cannot be changed (1)

Backing storage – So that users can have a permanent copy of the work they are doing/can have a copy of their work when the computer is switched off (1) [3]

12 **Four** from:

Inference engine

Rules base

Knowledge base

(Interactive) user interface

Explanation system

Easy to understand output screen

[4]

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- 13
- | | | | |
|--|---|-----------------|-----|
| storing data in online applications | → | DVD ROM | |
| to store data that cannot be changed | → | Fixed hard disc | |
| saving work and transporting it to other computers | → | Magnetic tape | |
| taking backups of file servers | → | Pen drive | [4] |

- 14 (a) **Two** from:
- Clicking the mouse (can cause pains in the fingers)
 - Typing on the keyboard (can cause wrist pains/carpal tunnel syndrome)
 - Holding of mobile/cell phones with bent elbow (can cause pain in the elbows/cubital tunnel syndrome)
 - Texting using PDAs/mobile/cell phones (can cause pain in the thumbs) [2]

- (b) **Two** from:
- Electrocution by touching loose wires/spilling liquids on electrical contacts
 - Tripping and falling over trailing wires or cables
 - Physical injury to feet/legs etc. caused by heavy equipment falling
 - Fire caused by too many plugs in multisocket and thereby overheating/over heating of equipment [2]

- 15 (a) Hub (1)
Switch (1)
Bridge (1) [3]

- (b) **Two** from:
- It stores information about which computer is connected to which network
 - It receives data packets from an individual computer
 - It passes the data packets to the appropriate switch
 - To reduce data collisions
 - It can connect the LANs to the internet [2]

- (c) 2 max for **three** pairs from:

User name and password (1)
It is very difficult for hackers to guess passwords/if you don't know password cannot gain access to system/data/need to know both username and password to gain access/(1)

Biometric data – retina scan, fingerprints/handprints, voice recognition etc. (1)
Each of these is unique/very difficult to replicate (1)

Magnetic stripe card for entry into company premises (1)
Difficult to replicate security information on stripe (1)

PIN for entry to company premises (1)
It is very difficult for hacker to guess PIN (1)

Digital certificate (1)
Confirms the origin of the document (1) [6]

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16 Four from:

Technical documentation has to be produced for systems analysts/programmers
Without technical documentation analysts programmers would not know how the system works
Without technical documentation analysts/programmers would not be able to update/improve system
Without technical documentation analysts/programmers would not be able to repair system when it malfunctions
User documentation needs to be phrased in a way that the average non-expert can understand
Without user documentation users would not be able to operate/use the system

Must gain at least one mark for each of user and technical to gain full marks [4]

17 (a) Two from:

A piece of programming code/software
Which replicates itself
Transmitted through email attachments/portable media
Corrupts/Deletes files/data
Can corrupt or erase the contents of the hard disk/can completely fill the hard disc/memory [2]

(b) Two from:

Gaining unauthorised access to a computer system
(May lead to) illegally copying data from a system
(May lead to) illegally amending data in a system
(May lead to) illegally deleting data from a system
Gaining authorised access to a system but exceeding their authority [2]

18 (a) Five from:

Data/fields should be spread out more/font size increased
Data for name/address/customer ID could have text boxes for completion
Date of birth could be a drop down list/prompt to show order of data e.g. dd/mm/yyyy/calendar prompt (to choose a date)
Gender field could have radio buttons for male/female/tick box/drop down list
To go back or forward could have buttons/arrow icons
More data/fields could have been used (accept examples)
Include a heading (name of company/Logo)
Add a submit/accept/save button [5]

(b) (i) Data that is outside the range/not of the right type (1)
Example: a number less than one/a number greater than 12/text (1)

(ii) Data that is valid/acceptable/within the range/correct type (1)
Example: any number between 1 and 12 inclusive (1)

(iii) Data that is at the edge of the range (1)
1 or 12 (1)

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19 Three from:

Data/file structures may need to be amended/improved
Validation routines may need to be amended/improved
Input methods may need to be amended/improved
Output formats may need to be amended/improved
Errors in processing/calculations may need amending/correcting
Errors may mean that parts of system need amending/correcting
If system does not work at all may need to restart at the design stage

[3]

20 Six from:

Laser printer/Inkjet printer higher quality output than Dot matrix printer
Laser printer/Inkjet printer faster output than Dot matrix printer
Laser printer/Inkjet printer are relatively quiet compared to Dot matrix printer
Laser printer has limited sizes of paper available/Inkjet has greater sizes of paper available/Dot matrix is unlimited in size in one direction only
Laser printer/Inkjet printer is susceptible to break down in oily/dirty conditions/Dot matrix printer less likely to break down in oily/dirty conditions
Laser printer/Inkjet printer more expensive running costs than dot matrix
Laser printer/Inkjet printer cheaper to buy than dot matrix
Inkjet printer cheaper to refill ink than laser/more expensive to refill than dot matrix printer
Laser printer/Inkjet printer needs regularly refilling with paper/Dot matrix printer has continuous paper feed available
Dot matrix printer/Laser printer – ink needs changing less often than Inkjet printer
Dot matrix printer has fewer colour options than laser printer/Inkjet printer
Dot matrix printer produces instantaneous copies
Noise is not a problem in this environment

One mark available for reasoned conclusion.

[6]

21 Four from:

You can get immediate feedback/interaction/You can ask questions immediately based on feedback
You know you have the right address/number
Laptop is not as portable as a phone
Laptop is difficult to use 'on the move'
Less impersonal/less risk of upsetting recipient/can detect emotions
Can make yourself understood more easily
Can be easier to get a connection

[4]