

MARKSCHEME

May 2007

INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY

Higher and Standard Level

Paper 1

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1. (a) **Identify *two* tasks performed by a network server apart from the storage of users' files.** [2 marks]

Answers may include:

- authentication / logins of users
- maintenance of user rights / access
- maintenance of print queues
- storage / provision of application software / example
- control of network traffic
- access to an Intranet
- server provides access to shared peripherals.

Answers must refer to an action carried out by the server not simply acting as a gateway.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for each task identified up to a maximum of [2 marks].

- (b) **Describe *one* advantage and *one* disadvantage of schools providing their students with USB drives.** [4 marks]

Answers may include:
advantages

- may remove the need to provide network storage
- encourages students to be responsible for own storage
- enables work to be easily transferred between school and the student's home.

disadvantages

- students may lose them
- students may forget to bring them
- loss of data
- viruses may be introduced onto the network
- formatting for school/home if a different platform.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for identifying the advantage and [1 additional mark] for an appropriate description.

Award [1 mark] for identifying the disadvantage and [1 additional mark] for an appropriate description.

- (c) **Explain *two* precautions that a student should take when using USB drives for saving important work.**

[4 marks]

One precaution is for the student to make additional backups at home or on the network server at school. The reason for this is that USB drives are often lost or stolen and so, therefore, is the data in them. Students should also be careful when sharing their USB drives with other students. A file with identification attached could help to resolve this. Another precaution would be to stop the drive before removal. This would prevent data corruption or damage to files, causing a loss of data. Removing the drive before it has stopped running could also damage the unit itself. Another precaution is to ensure the drives are virus checked using appropriate virus checking software. This is because there may be files in the drive that could contain a virus, potentially destroying all the data in the unit.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

[1 mark]

A general response that indicates very limited understanding of the precautions necessary or the precautions are simply identified.

[2-3 marks]

The two precautions are described at the lower end of the band. An attempt is made at explaining why the precautions are needed at the top end of the band, but the answer lacks depth or is unbalanced.

[4 marks]

A clear, detailed, balanced and coherent explanation of two precautions and the need to take the precautions.

2. (a) Define the term *bandwidth*. [2 marks]

Answers may include:

- difference between highest and lowest frequencies that can be transmitted
- the number of channels / frequencies
- can be carried simultaneously by a connection
- the rate at which data can be transmitted
- any mention of units used
- the number of bits that can be transmitted every second.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for each point identified up to a maximum of [2 marks].

(b) Describe *one* advantage and *one* disadvantage of sending the images as bitmapped files instead of vector graphics files. [4 marks]

Answers may include:

- bitmapped images made from pixels/dots
- each dot is separately stored
- pictures are easily edited
- bitmapped files are large files/vector graphics are small files
- bitmapped files upload slowly/vector graphics files upload quickly
- bitmapped images do not enlarge successfully
- suffer from pixellation/jagged edges
- bitmapped needed because images are not regular
- screen shots are not line drawings
- vector graphics are stored as mathematical relationships and so can be magnified without a loss of quality
- bitmapped files are more likely to be readable/editable (as suitable software is common)
- resolution issues.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1mark] for identifying the advantage and [1 mark] for identifying the disadvantage, plus [1 additional mark] for an appropriate description of the advantage and [1 additional mark] for an appropriate description of the disadvantage.

- (c) **With reference to *one* benefit and *one* problem, explain why there may be advantages and disadvantages for an author when working from home instead of in the publisher’s office.**

[4 marks]

One benefit to the author is that he/she does not have to travel to work. The author does not have physically to be on the publisher’s premises in order to get the work done. There is an advantage to the author because it saves time (traveling to and from work) and saves money (petrol costs are reduced). Another advantage to the author is that he or she can work at times to suit. The author is not restricted to conventional working hours, *e.g.* 9.00am to 5.00pm. This is an advantage because the author may have family commitments during the day, *e.g.* taking children to and from school. Working from home allows more flexible and appropriate use of time. Another advantage could be the environmental benefits of working from home. A disadvantage of working from home is the frequent disruptions that could occur from such things as family members, pets, neighbours and phone calls. This makes it very hard for the author to have a long block of uninterrupted time that may be needed in order to meet deadlines. Another problem of working from home is the delineation between work time and home time. Too often when working from home, work time intrudes into family time/leisure time. This can lead to family problems. Another disadvantage could be the loss of peer/colleague interaction, so important for professional development. The author has to be very disciplined.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader

[1 mark]

One advantage and one disadvantage are identified.

[2-3 marks]

The advantages and the disadvantages (at least one of each) are described at the lower end of the band. An attempt is made at explaining why they are advantages and disadvantages at the top end of the band, but the answer lacks depth or is unbalanced.

[4 marks]

A clear, detailed, balanced and coherent explanation of the advantages and disadvantages of the author working from home. One advantage and one disadvantage described in detail or more than one advantage and disadvantage in less detail can achieve full marks.

3. (a) Define the term *computer simulation*. [2 marks]

Answers may include:

- it is computer software
- it is the technique of trying artificially to represent the real world
- it is based on a mathematical model.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for each dot point up to a maximum of [2 marks].

(b) Describe *two* input devices that would be used in a pilot training computer simulation. [4 marks]

- throttle control – an effect
- landing gear – an effect
- elevators control – an effect
- rudder control – an effect
- slats control – an effect
- fuel control/shut off – an effect
- anything else that would be in a pilot’s cabin – an effect
- tilt switches/potentiometer – an effect
- joystick – an effect
- microphone – an effect
- levers – an effect
- pedals – an effect.

Reject any PC based devices.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for identifying each device up to a maximum of [2 marks], plus [1 additional mark] for a description of each device up to a maximum of [2 additional marks]. Question max [4 marks].

- (c) **Explain *one* benefit and *one* problem associated with training pilots on simulators instead of using real planes.**

[4 marks]

One benefit of using the simulator is that the plane is not tied up in a training exercise. Not only does this mean costs are lowered because there is no need to use expensive aviation fuel, but also the plane is now free to be earning money on commercial flights. Another benefit of using a simulator is that it is safer. A simulator can be used to train pilots in dangerous and unusual situations, which could be life threatening if practiced in an actual plane. These dangerous situations can be repeated on the simulator as many times as it takes to get it right. A problem with a simulation is that it is based on a model. If the model is inaccurate or incomplete then the simulation will not be a true replication of flying conditions. There is no substitute for the real thing. Pilots need to get a feel for handling a real plane under real conditions.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

[1 mark]

One benefit and one problem are identified.

[2-3 marks]

One benefit and one problem are described at the lower end of the band. An attempt is made at explaining why they are a benefit and a problem at the top end of the band, but the answer lacks depth or may be unbalanced.

[4 marks]

A clear, detailed, balanced and coherent explanation of one benefit and one problem of using a flight simulator.

4. (a) (i) **Identify the type of software that has provided this wizard.** [1 mark]

Answers may include:

- database
- database management system
- database software.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for identifying the software.

- (ii) **Identify one other task that may be performed by a wizard.** [1 mark]

Answers may include:

- mail merge
- creation of form
- creation of query
- creation of web page
- creation of report
- generation of graph
- installation of software
- installation of hardware.

The answer should be related to a technical task.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for identifying the appropriate task.

(b) **Users often get into difficulties when using application software. They may not always know how to make the application do exactly what they want. Apart from using wizards, describe *two* other IT methods that can help them to use the application software successfully.**

[4 marks]

- online help
- pressing F1 or alternative brings up help instructions.

- use of hypertext
- links provided in the help pages to related topics.

- context sensitive help (the term itself)
- description of context sensitive help (help is tailored to the current action).

- office assistant or description
- detects current operations and suggests solutions.

- web links
- discussion forum/knowledge base.

- tool tips
- description shows when mouse moved over object.

- sensible grouping of related actions
- makes using the options intuitive.

Methods given must be related to IT.

Examiners should be aware that students may take an alternative approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

Award [1 mark] for identifying each way up to a maximum of [2 marks]. Award an additional [1 mark] for an appropriate description of the way, up to a maximum of [2 marks].

- (c) **Examine the extent to which it is the responsibility of the company, rather than the employee, to pay for training.**

[4 marks]

If a company needs additional skills from the workforce, then it is their responsibility to provide it as the primary benefit accrues to the business. The skills learnt will be directly applied to the business in an attempt to improve production/productivity. And so it is the business that directly benefits from, hopefully, increased profit levels. It is the business, not the employee, that requires the particular skills needed. Every business has a responsibility to provide professional development for its employees, so that workers have the opportunity to improve their skills, seek advancement and have a more satisfying job. The provision of training is very important for staff motivation and morale.

Examiners should be aware that candidates may take a different approach, which if appropriate should be fully rewarded. If in doubt, check with your team leader.

[1 mark]

A brief and vague answer. There is very little understanding of the need to provide staff training.

[2-3 marks]

The student identifies the need to provide staff training but is unable to provide a reasoned argument at the lower end of the band. At the top end of the band a reasoned argument is provided, but it is superficial.

[4 marks]

A clear, detailed and coherent argument explaining why it is the responsibility of the business to pay for employee training.
