



**INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY**

**Standard Level**

Wednesday 19 May 1999 (morning)

Paper 2

2 hours

This examination paper consists of 2 sections, Section A and Section B.

Section A consists of a single compulsory question. The maximum mark for Section A is 20.

Section B consists of 4 essay questions. The maximum mark for each question is 20.

The maximum mark for this paper is 60.

**INSTRUCTIONS TO CANDIDATES**

Do NOT open this examination paper until instructed to do so.

Answer Section A and TWO questions from Section B.

**EXAMINATION MATERIALS**

Required:  
None

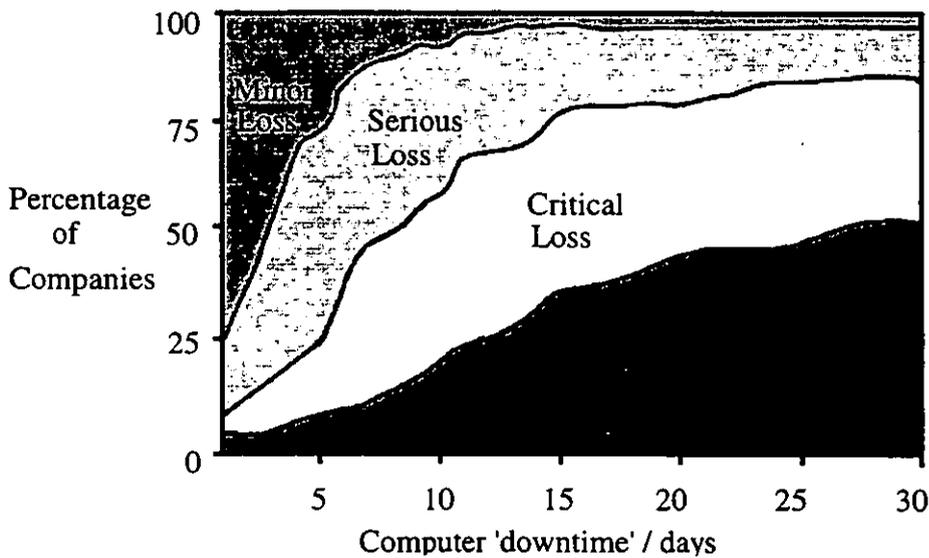
Allowed:  
A simple translating dictionary for candidates not working in their own language

### SECTION A

#### When computers fail, companies suffer.

1. Although computer-based systems have many advantages, they also have a distinct disadvantage: they may be more vulnerable than manual systems. Companies that have computerised their business transactions tend to become very dependent on computers to perform these crucial activities. Thus, when computers 'go down' for whatever reason, companies experience a definite loss in the ability to carry out business.

This chart shows the effects of varying lengths of computer 'downtime' on the loss of business function for some companies. A temporary loss of a business function does not necessarily result in the complete destruction of the company.



- (a) (i) Determine how many days it takes before 50% of companies suffer a total loss. [1 mark]
- (ii) Determine the percentage of companies that suffer only a minor loss if the computers 'go down' for less than half a day. [1 mark]
- (iii) Determine the percentage of companies that have suffered a critical loss but not a total loss when experiencing 5 days of computer 'downtime'. [2 marks]
- (b) State **three** conclusions you are able to draw from analysing the data in the chart. [6 marks]

- (c) (i) State one example of a type of company that would suffer total loss of business function if its computers did 'go down' for just a few minutes. *[1 mark]*
- (ii) Explain why it would suffer this total loss. *[2 marks]*
- (d) Explain possible circumstances when a school could fall into the category of 'minor loss of normal function' if its computers 'went down' for at least 15 days. *[2 marks]*
- (e) Some organisations must attempt to avoid situations in which their computers 'go down', even for only two minutes. Give an example of such an organisation and explain the ethical reasons why it must try to avoid such a situation. *[3 marks]*
- (f) Suggest why the percentage of companies that suffer only a minor loss of business function remains nearly constant after approximately 12 days of computer 'downtime'. *[2 marks]*

## SECTION B

Answer *TWO* questions. Up to *two* additional marks are available for the quality of construction of each of your answers.

2. A family with young children already has a computer with a large amount of memory and a high capacity hard disk. The parents have heard about multimedia features, including those on the Internet. They think that these multimedia applications may help their children with their schooling.
- (a) Outline **two** features (other than those mentioned above) that a computer system requires if it is to run these multimedia applications. *[2 marks]*
  - (b) Explain **two** disadvantages arising from the use of computers as a learning tool. *[4 marks]*
  - (c) Technology alone is no guarantee that students will learn more effectively. Discuss **three** social issues related to the use of computer-aided learning. *[12 marks]*
3. (a) List **two** services found on the Internet. *[2 marks]*
- (b) Some people are concerned about the uncontrolled access to Internet material that is deliberately offensive or unsuitable for certain age groups. Explain **two** ways of reducing these concerns. *[4 marks]*
- (c) The growth of the Internet has been exponential during the 1990s. Identify **three** reasons for this explosive development and suggest what is most likely to have the biggest influence on the development of the Internet in the future. *[12 marks]*
4. (a) Define the term 'wizard' as it applies to software. *[2 marks]*
- (b) Compare **two** tutorial and help features available in many software packages today with those from software packages sold a decade ago. *[4 marks]*
- (c) Suggest at least **two** designs for computer-human interfaces which are currently being developed (or which may develop in the future). Include a discussion of their social significance and likely degree of success. *[12 marks]*

5. The 1995 film *Toy Story* was the first film (movie) that was completely generated by computer. 110 people used 25,000 storyboard drawings to create 366 objects. It took over 180,000 machine hours to produce 79 minutes of computer animation.
- (a) List **three** hardware requirements of computers (other than large amounts of memory) that are needed to create animation. *[3 marks]*
- (b) Outline **three** types of graphics software available for personal computers that can also be used to create computer images for films. *[3 marks]*
- (c) Discuss the social (economic, legal and historical) significance IT has had on films and other performing arts. *[12 marks]*
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