

417/01

INFORMATION AND COMMUNICATION TECHNOLOGY

ICT4

USE AND IMPACT OF ICT

A.M. TUESDAY, 19 June 2007

(1½ hours)

ADDITIONAL MATERIALS

In addition to this examination paper, you will need an 8 page answer book.

INSTRUCTIONS TO CANDIDATES

Answer **all** questions in Section A and **one** question in Section B.

The intended marks for questions or parts of questions are given in brackets []. You are advised to divide your time accordingly. The total number of marks available is 60.

You are reminded of the necessity for good written communication and orderly presentation in your answers.

SECTION A

Answer all questions.

1. Several types of Human Computer Interfaces (HCIs) are used with computer systems. Each type of HCI provides specific benefits to the user.
 - (a) Describe a sensible use and benefit of the following types of HCI.
You should describe a different use and benefit in parts (i) and (ii).
 - (i) Touch sensitive screen. [2]
 - (ii) A biometric device. [2]
 - (b) Name an application which uses a *voice interface* and discuss any problems associated with the use of voice interfaces. [3]

2. Products can be purchased on the Internet using a company website.
 - (a) Describe **two** methods a customer could use to find the website. $2 \times [2]$
 - (b) Describe **two** methods a customer could use to quickly find information *within* the website. $2 \times [2]$

3. The Internet can be used to access many types of online distributed databases.
 - (a) Explain, *using a suitable example*, what is meant by a distributed database. [2]
 - (b) Describe how distributed databases can be beneficial to an organisation. [2]
 - (c) Landscape gardeners can use *wireless* technology to access a library of garden designs held on a database in their office.

Describe in detail **two other** applications which use wireless technology. [2]

4. Many bank customers have online bank accounts. Customers can complete online forms to pay bills and transfer money between their accounts using the Internet. Verification or validation procedures are used to reduce data entry errors.
 - (a) Explain, giving a *different* example in **each** case, how **both** the *bank* and the *customer* can minimise data entry errors when filling in the online forms. [2]

(b) The bank must protect data from accidental loss or malicious damage.
Discuss in detail the security measures the bank needs to introduce to prevent:

(i) accidental loss due to;

(I) human error;

(II) fire or flood;

2 × [2]

(ii) malicious damage by unauthorised users.

[2]

(c) The bank has undertaken a 'risk analysis' in order to produce a strategy to protect data.

Identify **two** factors which should be taken into account when determining how much money a company spends on controlling and minimising risk. [2]

5. A college keeps details of students, staff and courses in a file. Part of this file is shown below.

<i>Student No.</i>	<i>Student Name</i>	<i>Date of birth</i>	<i>Gender</i>	<i>Course No.</i>	<i>Course Name</i>	<i>Lecturer No.</i>	<i>Lecturer Name</i>
0567	J Evans	11/04/89	M	COMP7	Computing A level	186	H Smith
8453	R Begum	19/03/88	F	BIOL9	Biology A level	78	D Jones
0567	J Evans	11/04/89	M	MATH5	Maths A level	186	H Smith

The data in this file is not normalised.

(a) Using data from the above file to illustrate your answer, describe **two different** problems associated with data not being normalised. 2 × [2]

(b) The above data can be re-organised into a normalised relational database with tables linked using primary and foreign keys.

Re-organise this data into a normalised relational database using **two** tables.

You should clearly indicate the table names and any primary or foreign keys that you use.

[5]

SECTION B

Answer **either** question 6 **or** question 7.

6. Networks can be arranged in several topologies.

- (a) Draw and label a *star network*. [4]
- (b) Describe a suitable use for a *ring network*. [2]
- (c) Discuss in detail the advantages and disadvantages of a ring network. [6]
- (d) Other than security and topology issues, discuss in detail **two** factors that will influence the choice of a network. [4]
- (e) Networks make use of intranets.
Explain the function of an intranet and give an example of how it could be used. [2]

Quality of Written Communication

[2]

7. An organisation has introduced new ICT systems. These new systems have had a great impact upon employment opportunities and the way in which people work within the organisation.

- (a) Discuss **three** potential *health issues* which might occur with the introduction of these new ICT systems and describe measures the organisation could take to prevent them. $3 \times [2]$
- (b) Discuss in detail the impact these new ICT systems could have upon *jobs* and *work patterns*. Illustrate your answers with **three** distinctly different examples in **each** case. $3 \times [2]$
- (c) Employees must be aware of both legal and moral issues relating to the use of ICT systems.

Explain the differences between *legal* and *moral* issues with respect to codes of conduct of employees in the organisation. Illustrate your answers with **three** distinctly different examples. $3 \times [2]$

Quality of Written Communication

[2]