GCE A level

1243/01 | New A2

INFORMATION AND COMMUNICATION TECHNOLOGY

IT 3

INFORMATION SYSTEMS

P.M. WEDNESDAY, 27 January 2010

$2\frac{1}{2}$ hours

ADDITIONAL MATERIALS

In addition to this examination paper, you will need a 12 page answer book.

INSTRUCTIONS TO CANDIDATES

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

The intended marks for questions or part questions are given in brackets [ ]. You are advised to divide your time accordingly. The total number of marks available is 90.

You are reminded of the necessity for good written communication and orderly presentation in your answers. Quality of written communication will be assessed in questions 6 and 9.

SECTION A

*Answer **all** questions*

1. The Human Computer Interface (HCI) is an important part of an ICT system.

   (a) Examine the different needs of an expert user and a novice user and describe how they can be met when designing the HCI. [5]

   (b) Discuss using examples, the features of a HCI that would be suitable for the disabled user. [4]

2. A company has moved into an old building and has decided to install a network.

   (a) Compare and contrast the relative advantages and disadvantages of ring and star topologies. [6]

   The company is considering using a wireless network.

   (b) Describe **two** advantages and **two** disadvantages for the company of using a wireless network over a cabled network. [4]

3. A local doctor's practice uses a network to manage patient records, appointments and all its financial functions. The Practice Manager is worried about the confidentiality of the patient records.

   (a) Explain why the practice should have a security policy and give **two** examples of what this should contain, other than user accounts and logs. [4]

   (b) Describe the use of user accounts and logs as a way of ensuring the confidentiality of patient records. [3]

4. An organisation has a website on the internet to advertise its products and allow customers to order online.

   (a) Define and explain **two** methods by which a customer could find the website using the Internet. [4]

   (b) Explain, by giving an example, how **each** of the following could be used by the organisation:

   (i)   File transfer protocol (FTP); [2]

   (ii) On-line databases. [2]

5. Many large research projects make use of distributed computing using the Internet.

   (a) Explain what is meant by distributed computing. [3]

   (b) Describe an application where distributed computing is used. [2]

   (c) State the advantages and disadvantages of distributed computing. [4]

6. *'The increase in bandwidth has resulted in an increasing number of people being able to work from home using computer networks, often referred to as teleworking.'*
Discuss, with the aid of suitable examples, the advantages and disadvantages to employees and organisations of such methods of working. [8]

7. Some employees can misuse an organisation's ICT facilities.

  (a) Many organisations have a code of conduct to deter their employees from misusing their ICT facilities. Describe what a code of conduct is and describe **three** things it should contain. [5]

  (b) Describe **three** ways in which an employee can misuse the organisation's ICT facilities and give **two** possible penalties for misuse. [5]

8. Describe the factors an organisation needs to consider when producing a risk analysis. [4]

9. *'There is no effective ownership or control of the Internet'.*
Discuss, with suitable examples, whether you consider this statement to be true or false. [8]

SECTION B

*Answer **either** question 10 **or** question 11*

10. *(a)* An effective Management Information System (MIS) has become very important to organisations. Describe what is meant by a MIS. Compare and contrast the factors which make the difference between an effective MIS and a poor MIS, using appropriate examples. [9]

  (b) Despite rigorous testing, it is sometimes necessary for software developers to maintain the systems they have produced. Explain why this situation might arise and describe, using suitable examples, some of the different types of maintenance that might have to be undertaken. [8]

11. A mail order company uses a relational database management system for storing details of orders. Stock and customers are allocated to orders.

  (a) Explain what is meant by a relational database. [2]

  (b) One table in this database could be

  STOCK [StockID, Stock name, Price, Size, *ManufacturerID*]

  With StockID being the primary key and *ManufacturerID* the foreign key.

  Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [5]

  (c) The company uses a data warehouse to hold details about customers and their transactions. Explain how the data warehouse and data mining could be useful to a mail order company. [4]

  (d) Describe the advantages of a relational database approach over a flat-file approach in relation to data redundancy, data integrity and data consistency. [6]