GCE A level

1243/01

INFORMATION AND COMMUNICATION TECHNOLOGY
IT 3
INFORMATION SYSTEMS

P.M. MONDAY, 14 June 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 5 *(a)* and 5 *(b)*.

SECTION A

*Answer **all** questions*

1. The Human Computer Interface (HCI) is an important part of an ICT system. Describe **four** factors which should be taken into account when designing a good HCI.
    Explain why **each** factor is important. [4×2]

2. Network topologies have different properties.

    (a) Draw and label a star network. [2]

    (b) State **two** advantages of a ring network. [2]

    (c) Other than topology issues, discuss in detail **three** factors that will influence the choice of a network. [6]

3. Many organisations use the Internet for commercial activity. Describe the facilities that an organisation has to put in place in order to turn its web site into an e-commerce operation. [4]

4. Having investigated and analysed a system, a systems analyst will then have to consider which changeover strategy he is going to suggest for the implementation.

    (a) Describe and evaluate **two** *alternative* changeover strategies the analyst could use. [6]

    (b) Over time, users may become dissatisfied with their ICT system. Discuss why this might be the case. [4]

5. *(a)* Describe what is meant by a management information system (MIS). Include in your answer **one** example of how an MIS can be used. [5]

    (b) Describe the factors which make a good or a poor MIS using examples to illustrate your answer. [8]

6. A Health Authority is very dependent on their ICT system for administration. The Health Authority is undertaking a *risk analysis*.

    (a) Describe in detail **two** of the factors the Health Authority should take into account when deciding how to develop, control and minimise the *risk* to data. [2×2]

    (b) Identify a problem that could arise if steps are not taken to minimise the risk, discuss its possible impact and describe in detail a suitable strategy to overcome it. [4]

7. ICT systems have an effect in the workplace.

    (a) Describe **three** possible *health issues* which could have occurred with the introduction of ICT systems and the actions that an organisation should take to prevent them. [3×2]

    (b) Describe in detail the impact ICT systems could have upon *jobs* and *work patterns*. Illustrate your answers with **three** distinctly different examples. [6]

8. The Internet, whilst bringing a number of benefits to society has also raised a number of issues. Discuss in detail moral, social or ethical issues associated with the use of the Internet. Illustrate your answers with distinctly different examples for **each** issue. [8]

SECTION B

Answer **either** *question* **9** *or* *question* **10**.

9. Most organisations now have ICT security policies.

    (a) Discuss in detail the potential threats to data and the possible consequences of accidental or deliberate destruction of data. Illustrate your answer with distinctly different examples in **each** case. [9]

    (b) Discuss **four** methods which could be used to prevent the deliberate destruction or misuse of data. [4×2]

10. *(a)* A hospital uses a relational database management system for storing patient records. Staff and patients are allocated to wards.

        (i) Explain what is meant by the term *data normalisation*. [2]

        (ii) One table in this database could be
STAFF (Staff Id, Name, Contact no, $\overline{Ward\ no}$)

           With Staff Id being the primary key and $\overline{Ward\ no}$ the foreign key.

           Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [6]

        (iii) Explain why relational databases are more secure than a flat file approach for storing patient records. [2]

    (b) Most Health authorities now use *distributed databases*. Explain what is meant by the term distributed database and discuss their advantages and disadvantages. [7]