General Certificate of Education
January 2005
Advanced Level Examination

ASSESSMENT and QUALIFICATIONS ALLIANCE

INFORMATION AND COMMUNICATION TECHNOLOGY ICT5
Unit 5 Information: Policy, Strategy and Systems

Wednesday 26 January 2005 1.30 pm to 3.30 pm

In addition to this paper you will require:
a 16-page answer book.

Time allowed: 2 hours

Instructions
- Use a blue or black ink or ball-point pen. Use pencil only for drawing.
- Write the information required on the front of your answer book. The *Examining Body* for this paper is AQA. The *Paper Reference* is ICT5.
- Answer **all** questions.

Information
- The maximum mark for this paper is 90.
- Mark allocations are shown in brackets.
- The use of brand names in your answers will **not** gain credit.
- You are reminded of the need for good English and clear presentation in your answers. Question 9 should be answered in continuous prose. The Quality of Written Communication will be assessed in this answer.

Answer **all** questions.

1 Name **three** ways of obtaining software to provide solutions to specialist applications. *(3 marks)*

2 Describe **three** ways in which a company can make use of computer networked systems. *(6 marks)*

3 Users may be aware of differences in the user interface between a stand-alone machine and one that is on a computer network.

For each of the following issues, describe **one** possible effect of a network environment on the user interface:

(a) security of the system; *(2 marks)*

(b) control of software used; *(2 marks)*

(c) control of files used; *(2 marks)*

(d) access rights to resources. *(2 marks)*

4 The interface for a computer system to be used by the general public has to be chosen carefully. An example of such a system is an Automated Teller Machine (ATM) network.

(a) Name, and give a reason for, a suitable type of interface for an ATM. *(2 marks)*

(b) Describe **two** characteristics of this type of interface, which make it suitable for an ATM. *(4 marks)*

(c) Describe **two** characteristics of the input and output devices that form part of an ATM. *(4 marks)*

5 (a) Explain why entity-relationship diagrams are used when designing a relational database. *(3 marks)*

(b) Describe the process of normalisation. *(4 marks)*

(c) Explain, using an example, why normalisation is used when designing a relational database. *(4 marks)*

6 A large college requires a new Management Information System to be created, which will replace several separate departmental systems. This new system will be used to provide information to external agencies, as well as statistical information to college staff. A small software company has won the contract to supply this software, although it has no previous experience of working with educational establishments.

(a) The college and the software company feel that it is important to discuss the requirements of the system.

Explain why this meeting is important for both parties. *(3 marks)*

(b) Evaluation criteria have been established by the two parties to compare the possible solutions that the software company could produce. These criteria include "cost-benefit" and "compatibility".

(i) Explain why "cost-benefit" is a useful criterion in this situation. *(2 marks)*

(ii) Explain why "compatibility" is a useful criterion in this situation. *(2 marks)*

(iii) Name and describe **two** other criteria that would be useful in this situation, stating why each one is useful. *(6 marks)*

(c) A report is produced for the college that compares various possible solutions.

Name **four** sections that are likely to form part of the report, stating the purpose of each section. *(8 marks)*

7 A software company has created a program to assist people in recording findings whilst researching their family history. Many users discover a problem with a particular part of this program.

Describe **two** methods that the company can use to distribute a solution to this problem. *(4 marks)*

8 An office worker is having problems connecting to the Internet. A technician fixes this problem, but finds that several websites cannot be viewed correctly, as the page content is not standard.

(a) Define the term *protocol* in relation to networking. *(2 marks)*

(b) Explain why standards are important for communication over the Internet. *(3 marks)*

(c) Explain the need for standard data representation in relation to networking and the Internet. *(2 marks)*

TURN OVER FOR THE NEXT QUESTION

9 A partnership of architects is experiencing problems with its computer systems, which are several years old. These systems run both generic and specialist software, and make use of a range of hardware, including specialist devices. You have been asked to write a report that includes:

- the reasons why this organisation may wish to upgrade its hardware, and how it could be done;
- the reasons why this organisation may wish to upgrade its software, and how it could be done;
- an outline of a backup strategy for this partnership.

The Quality of Written Communication will be assessed in your answer.

(20 marks)

END OF QUESTIONS