

General Certificate of Education
June 2002
Advanced Level Examination



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

Tuesday 25 June 2002 Morning Session

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

Time allowed: 2 hours

Instructions

- Use blue or black ink or a blue or black ball-point pen. Pencil should only be used 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.
- You are reminded of the need for good English and clear presentation in your answers. Question 9 should be answered in continuous prose. Quality of language will be assessed in this answer.

Answer **all** questions.

- 1 Software houses go through a long testing programme before releasing a product. Despite this, problems can still occur with that product.

Give **three** reasons why testing may not be completely successful. (3 marks)

- 2 A graphic designer makes use of a particular hardware platform and particular software packages. Her clients often send her files produced on computer systems that are incompatible with hers. One solution for the designer is to use emulation software.

Describe **one** advantage and **one** limitation the designer will have if she pursues this solution. (4 marks)

- 3 Networks of computers are rapidly becoming part of everyday life, both for organisations and individuals. Communication over networks involves the use of protocols.

(a) Define the term *protocol*. (1 mark)

(b) With the aid of an example, describe **one** advantage of using protocols. (3 marks)

(c) State **one** consideration that should be taken into account when setting up a network, and explain why it is important. (2 marks)

- 4 A large market research company is considering several different software packages in order to assist with the analysis of data collected on behalf of clients.

Give **three** criteria that should be considered when evaluating these software packages. For each criterion, explain why it may be important to this company. (9 marks)

5 The secretary of a local tennis club is constructing a database to store data on members' personal details and records of attendance. He has been told that a relational database management system can assist him. Having found an article on relational database construction, he does not understand some of the terminology it contains. He asks you for advice.

(a) Explain the following terms:

- (i) *normalisation*;
- (ii) *data independence*;
- (iii) *data consistency*;
- (iv) *data integrity*.

(8 marks)

(b) The secretary constructs his database structure and asks you to examine his work before he enters any data. You notice that he has not included any validation.

With the aid of an example, explain why data validation is important.

(3 marks)

(c) Give **three** reasons why he should consult with other members of the tennis club committee before finalising the design of the database system.

(3 marks)

6 (a) Describe **two** factors that need to be considered when designing for human/computer interaction.

(4 marks)

(b) Describe **two** resource implications of providing an effective interface.

(4 marks)

(c) Some users may customise their interface.

Describe **one** consequence this may have for support staff when providing technical assistance.

(2 marks)

7 As an ICT manager in a medium sized company, you have been asked to create a job specification for a database administrator.

(a) Describe **three** responsibilities you would include in this specification.

(6 marks)

(b) The database that this person will be in charge of is a client/server database.

Describe **two** advantages of using this type of database over a non-client/server database.

(4 marks)

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- 8 (a) Describe **two** changes that may be evident to end-users when they change over from using a stand-alone computer to a networked environment. (4 marks)
- (b) A multinational company has recently created an Intranet, connecting all of its computer systems. All its sites are now connected using high-speed dedicated links.
- (i) Describe **one** facility that could now be made available to the company which would improve productivity. (2 marks)
- (ii) Describe **two** possible problems that may arise as a result of using this network of computer systems. (4 marks)
- (iii) Describe **two** possible measures that the company can take to combat problems caused by the use of this type of network. (4 marks)
- 9 A local council has decided to standardise the ICT systems across all its departments. This is due to problems experienced in transferring data and staff between departments.

Discuss the above statement. Include in your discussion:

- the benefits that the staff may gain from this approach;
- the benefits that the council may gain from this approach;
- the reasons why staff may not wish to change.

The quality of language will be assessed in your answer.

(20 marks)

END OF QUESTIONS