General Certificate of Education
January 2006
Advanced Level Examination

ASSESSMENT and QUALIFICATIONS ALLIANCE

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

Thursday 26 January 2006   1.30 pm to 3.30 pm

For this paper you must have:
- a 16-page answer book

Time allowed: 2 hours

Instructions
- Use 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.
- The marks for questions are shown in brackets.
- You will **not** gain credit for the use of brand names in your answers.
- 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.

ICT5

Answer **all** questions.

1 The management of a large chain of garages has decided to obtain new software to help it run the company. Their own developers could write a bespoke solution in-house, or the garage chain might obtain the software in other ways.

State **two** other ways in which the company might obtain the software and, for each one, give a benefit to the company. *(4 marks)*

2 Graphical User Interfaces (GUIs) are easy to use, but have implications for the demands made on system resources.

Name **two** system resources and, for each one, explain why a GUI increases the demands made on it. *(4 marks)*

3 New software should be thoroughly tested.

(a) Describe what is meant by *alpha* and *beta* testing. *(4 marks)*

(b) Explain **two** reasons why the new software may fail to operate correctly, even if the developer has followed an extensive testing programme. *(4 marks)*

4 (a) Explain what is meant by *data normalisation*. *(4 marks)*

(b) With reference to Relational Database Management Systems, explain the following terms:

(i) *data consistency*; *(2 marks)*

(ii) *data integrity*; *(2 marks)*

(iii) *data independence*. *(2 marks)*

5 Companies make use of networked systems for various applications.

Using examples of **four** different applications, explain the benefits that a company gains from the use of networked systems. *(8 marks)*

6 Designers of Human/Computer Interfaces (HCIs) have to consider the psychology of interaction between humans and the computer system. One psychological factor they need to consider is making the interface user friendly. For example, the designer chooses a beep to alert the user to the error condition 'printer out of paper'.

State **three** other psychological factors an HCI designer should consider and for each one, use an example to show how this factor has been considered.

(9 marks)

7 Protocols and standards are vital for the operation of the Internet.

   (a) What is meant by the term *protocol*? *(1 mark)*

   (b) Give **two** reasons why protocols are necessary. *(2 marks)*

   (c) Give **two** reasons for having standards. *(2 marks)*

   (d) Explain what is meant by a *de facto* standard. *(2 marks)*

   (e) A Uniform Resource Locator (URL), for example http://www.aqa.org.uk, can be entered into a browser in order to view that particular website.

      Explain why URLs are used. *(3 marks)*

8 The ICT manager of a chain of high street opticians thinks that the software they are using may need to be upgraded or replaced, and is preparing a report.

   (a) Explain **four** reasons why the ICT manager might want to upgrade or replace their software. *(8 marks)*

   (b) The ICT manager decides to set evaluation criteria to assess alternative software packages.

     (i) Explain why the ICT manager needs to use evaluation criteria. *(2 marks)*

     (ii) Name **four** criteria that the ICT manager might use. *(4 marks)*

   (c) State **three** topics that the ICT manager should include in her evaluation report.
(3 marks)

9 You are in charge of ICT in a large secondary school that has to be rebuilt. The head teacher wants all the computers in the new buildings to be networked.

Write a report for the head teacher on the issues involved. Pay particular attention to:

- security measures for the network;

- network auditing;

- network accounting.

The Quality of Written Communication will be assessed in your answer. *(20 marks)*

END OF QUESTIONS

There are no questions printed on this page