



ADVANCED  
General Certificate of Education  
January 2009

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## Information and Communication Technology

Assessment Unit A2 1

*assessing*

Module 4: Development of Information Systems

[A2W11]



FRIDAY 16 JANUARY, MORNING

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### TIME

1 hour 30 minutes.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number on the Answer Booklet provided.  
Answer **all seven** questions.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 90, including a maximum of 4 marks for quality of written communication.

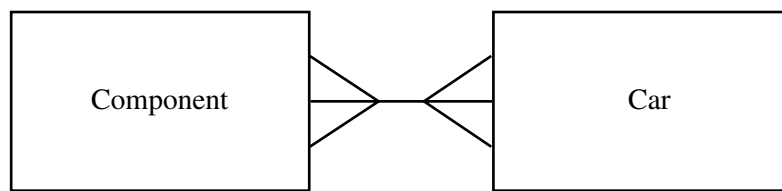
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Answer **all seven** questions.

- 1** A software system can be bought 'off-the-shelf' or outsourced to ICT consultants.
- (a) Compare these **two** methods of producing a software system using the following headings.
- (i) Cost [3]
  - (ii) Implementation time [3]
  - (iii) Suitability [3]
- (b) Name and describe one other method of obtaining a software system. [3]
- 2** (a) Explain why protocols are required for data communication. [2]
- (b) Briefly describe the following network protocols.
- (i) CSMA/CD
  - (ii) TCP/IP [6]
- (c) Compare co-axial cable and fibre optic cable with regard to:
- (i) Data transfer capacity.
  - (ii) Signal interference. [4]
- 3** A range of factors can influence human computer interaction (HCI).
- (a) Describe **three** physical factors which can influence HCI. [6]
- (b) Describe **two** psychological factors which can influence HCI. [6]

- 4 An organisation with a number of branches worldwide uses a distributed database.
- (a) Describe **two** advantages of a distributed database over a centralised database. [4]
- (b) Describe **two** disadvantages of a distributed database over a centralised database. [4]
- Access to the database is restricted using access levels and audit trails.
- (c) Apart from **read only**, name and describe **two** other access levels. [4]
- (d) Identify **four** activities recorded by an audit trail. [4]
- 5 A project manager is appointed for a new information system.
- (a) Describe the role of a project manager. [5]
- (b) Describe how each of the following CASE tools could be used in the development of the new system.
- (i) A modelling tool
- (ii) A data dictionary generator
- (iii) A code generator [9]
- 6 A new information system undergoes testing.
- (a) Explain what is meant by each of the following.
- (i) Alpha testing.
- (ii) Beta testing. [6]
- (b) After the system has been in use for some time, one of the software modules has to be modified. Describe the testing which will be required **in this case**. [4]

- 7 The following entity relationship (ER) model was produced during the design of a car assembly system.



Before the model can be implemented as a relational database, the relationship must be modified.

- (a) Explain, with the aid of a diagram, how the relationship should be modified. [4]
- (b) Describe how the entities in the modified ER model could be used to create a relational database. [6]