



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Advanced Level

CANDIDATE  
NAME

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CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY**

**9713/31**

Paper 3

**May/June 2012**

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No additional materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, highlighters, glue or correction fluid.

You may use a pencil for any diagrams, graphs or rough working.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

The businesses described in this paper are entirely fictitious.

This document consists of **16** printed pages.



**Scenario 1**  
**Questions 1, 2 and 3***For  
Examiner's  
Use*

Mary is the new ICT director of a multi-national company which constructs flight simulators.

She has to manage the installation of a network in a new building. The new network will have several computers and will need to communicate with other departments all over the world.

She will need to consider:

- the hardware requirements for the network
- the security of the network
- the network protocols

- 1 (a) Identify and state the purpose of **four** network devices which could be used in the new network.

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4 .....

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..... [8]

- (b) Mary has decided to install a firewall.  
Describe **four** ways in which a firewall increases security.

Way 1 .....

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Way 2 .....

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Way 3 .....

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Way 4 .....

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..... [4]

- (c) Describe **four** items of information contained in the header of a data packet under TCP/IP protocol.

Item 1 .....

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Item 2 .....

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Item 3 .....

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Item 4 .....

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..... [4]

2 Describe, including a **benefit**, each of the following methods of connecting the new network:

*For  
Examiner's  
Use*

(i) twisted pair copper cable

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..... [2]

(ii) fibre optic cable

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..... [2]

(iii) Wi-Fi

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..... [2]

- 3 (a) Describe **four** devices that will be provided in the cockpit of a flight simulator for a trainee pilot to use.

For  
Examiner's  
Use

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..... [8]

For  
Examiner's  
Use

[6]

**Scenario 2**  
**Questions 4 and 5***For  
Examiner's  
Use*

The North India Motor Company is a manufacturer of cars. The manufacture of these cars involves obtaining components such as car seats, engines, body shells, wheels and windows and assembling them on a production line.

Iqbal, the chief designer, has been given the task of designing and producing a prototype of a new family car. To help him do this he will make use of CAD/CAM.

The company also has a service department so that owners can bring the cars back if there are problems. The service department uses an expert system for diagnosis.



- 4 (a) Describe **four** ways that a Gantt chart would help in the project management of the construction of the cars on the production line.

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2 .....

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..... [4]

- (b) Describe **four** steps in the Just in Time process that could be used in supplying the components.

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2 .....

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3 .....

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4 .....

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..... [4]

For  
Examiner's  
Use

[5]

5 (a) Describe the **two** parts of a knowledge base in the expert system.

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2 .....

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(b) Describe in detail one other part of the expert system.

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**Scenario 3**  
**Questions 6, 7, 8 and 9***For  
Examiner's  
Use*

A regional government has introduced ICT services for use by its staff and the general public. There is a website for the public to access its services which includes online job applications, education opportunities and health facilities.

The government uses a telephone call centre for market research. The call centre uses Computer Telephony Integrated software (CTI). It also uses a DBMS to produce reports on the use of the CTI system.

The chief executive of the region is investigating ways of using ICT to communicate with the managers in different parts of the region so that managers do not have to travel.

Some areas of the region have limited or no access to ICT services and the people living there may not have ICT skills.

6 Describe, giving examples, **three** services that the regional government site could provide users of its website.

For  
Examiner's  
Use

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[6]

7 Describe the contents of the following **three** reports produced from the DBMS.

For  
Examiner's  
Use

Call response time .....

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Number of calls .....

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Costs associated with calls .....

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[6]

- 8 Give **one** benefit and **one** drawback of each of the following methods of communication between the chief executive and the managers.

For  
Examiner's  
Use

Video conferencing

Benefit .....

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Drawback .....

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Phone conferencing

Benefit .....

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Drawback .....

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Instant messaging

Benefit .....

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Drawback .....

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For  
Examiner's  
Use

[6]

[6]