



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

CANDIDATE
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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/31

Paper 3

May/June 2010

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.

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This document consists of **20** printed pages.



Scenario 1
Questions 1 to 3

A large international airport is required to introduce a number of security measures and has introduced new customer information services.

All passengers will need to have an electronic passport. The airport will use additional identification in the form of electronic fingerprinting at various points in the airport.

Tickets for all flights are now electronic (e-tickets).

There are computer-based information kiosks throughout the airport. Passengers can now print out their own boarding passes and obtain flight information from any one of these kiosks.

1 (a) State **three** items of information that would be stored on the passport.

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(b) Describe the electronic components in the passport.

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(c) Describe **three** advantages of electronic passports when compared to paper-based passports.

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(d) Explain how the use of electronic fingerprinting improves airport security.

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Use*

- 2 (a) Describe how the system will match an e-ticket to a passenger when they check in at the airport.

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- (b) Describe the advantages of e-tickets when compared to paper-based tickets.

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- 3 (a) Explain the advantages to the passengers of having computer-controlled information kiosks rather than manned desks.

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Scenario 2
Questions 4 to 6

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The Niagara Drug Company is a large pharmaceutical company which develops, manufactures and markets new drugs.

They are developing an expert system to help chemists in their research.

Once a new drug is developed, the company needs to market it. They have a market research team who use primary research techniques.

The company's many processes are monitored and controlled by microprocessors.

4 (a) Describe how the knowledge base of the expert system could be set up.

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(b) Explain how the knowledge base of the expert system will be edited.

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5 Describe the primary market research techniques that would be used.

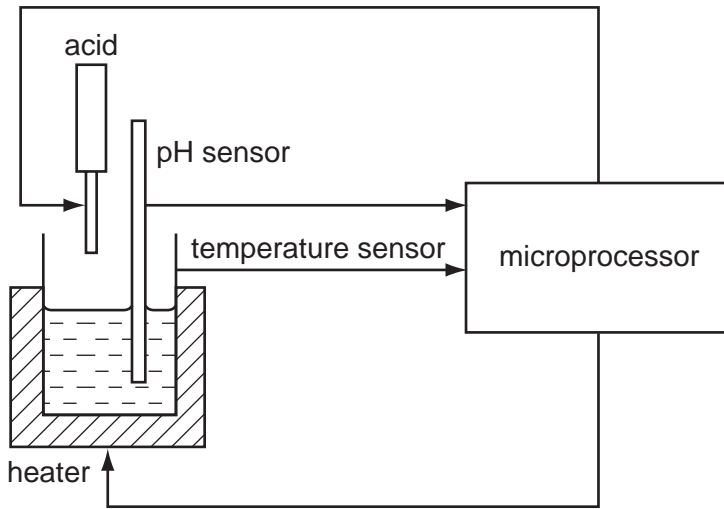
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6 The diagram below shows one of Niagara Drug’s chemical processes. This process is dependent on pH and temperature. Sensors are used to relay back information.

For
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Describe how the sensors and microprocessor are used to control the conditions in the chemical process.

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Scenario 3
Questions 7 to 8*For
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Rock-ICT is a large international company involved in the entertainment business.

A firm of IT consultants has designed dedicated video conferencing suites for Rock-ICT. This will enable communication between their offices in Lahore and Dubai. However, they are also considering alternative methods of communication.

Rock-ICT presently has a large library of CDs of music tracks and DVDs of films and television programmes.

They monitor worldwide television and radio transmissions via satellite systems.

(c) Rock-ICT is considering the use of VOIP and instant messaging for communications. Discuss the advantages and disadvantages of these methods compared with video conferencing.

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- 8 (a) Describe why Rock-ICT are converting their CD and DVD files into MP3 and MP4 format.

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- (b) Describe how a satellite television system works.

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(c) Describe the advantages of using satellite-based systems rather than using terrestrial television.

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Scenario 4
Questions 9 to 10*For
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ScanXam is a company that supports examination marking.

Examination papers, containing hand written answers, are input into a computer system. This allows examiners to mark the candidates' work on their computers at home. This type of working has had a number of effects on the examiners.

The candidates' work is stored on a central database; examiners have to log on to the ScanXam website to gain access to the papers to be marked.

- 9 (a) Describe how the written examination papers are entered electronically into the computer system.

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- (b) Describe the advances in ICT that have taken place to allow this type of marking to be adopted.

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*For
Examiner's
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10 Discuss the effects on the examiners relating to work patterns, health and safety.

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