



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Advanced Level

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**APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY**

**9713/13**

Paper 1

**October/November 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 **22** printed pages and **2** blank pages.



**Scenario 1**  
**Question 1**

A food company in Auckland manufactures pre-packed meals. The manufacture of these meals consists of three processes.

Food mixing process – The company has a large-scale food mixer which mixes the ingredients together. The resulting mix is then moved to the production line.

Food packing process – On the production line individual containers are filled with the mix and a lid is placed on the container followed by a food label. The food containers are then moved to the refrigeration plant.

Storing process – The containers are stored in the refrigeration plant before they are transported to shops.

1 (a) Using examples from the scenario, describe what is meant by:

*For  
Examiner's  
Use*

Batch process control .....

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Continuous process control .....

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Discrete process control .....

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..... [6]



**Scenario 2**  
**Questions 2, 3 and 4**

Yellowcap Beverages, Nairobi, has a payroll office which is computerised for paying the weekly wages of its workers. At the moment, the payroll transaction file consists only of the hours worked by each worker together with their payroll number. The system runs the master and transaction file together once a week to produce the payslips and update pay details on the master file. Any other changes to the master file are made manually at a separate time.

Yellowcap Beverages wants to computerise all aspects of the payroll system. Geno, a systems analyst, has produced some software which can be used to automatically update the master file. This will involve the use of a second transaction file separate to the payroll process. He has also produced some technical documentation for the new system.

A few of the workers would like to work from home but the majority of the workers and the company prefer the work to be office based.

- 2 (a) When the payroll application is run using the transaction file in the current system, some of the master file data will change.

Give **two** examples of master file data that will be changed.

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2 .....

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..... [2]

- (b) Give **three** examples of data in the master file that will remain unchanged.

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2 .....

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3 .....

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..... [3]

(c) Describe, using examples based on the scenario, **three** types of transaction which would be included in the second transaction file.

*For  
Examiner's  
Use*

1 .....

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2 .....

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3 .....

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..... [3]



4 For each of the following types of technical documentation describe **three** items which would be present in each.

Systems

1 .....

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2 .....

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3 .....

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Program

1 .....

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2 .....

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3 .....

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[6]

**Scenario 3**  
**Question 5**

*For  
Examiner's  
Use*

Russia Newspapers owns the St Petersburg Chronicle. Many of its reporters work abroad covering foreign news stories. They are generally based in hotels and are usually able to communicate with the editor using ICT.

It is the editor's responsibility to collect the stories from the reporters and create the newspaper layout.

As well as a printing press at the main offices in St Petersburg, Russia Newspapers owns several printing presses in other cities in Russia.

5 (a) Describe **four** ways that ICT could be used by a reporter to produce a story and communicate it to the editor.

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3 .....

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4 .....

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..... [4]

(b) Describe **one** method which could be used to transmit a completed page from St Petersburg to printing presses in other cities.

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..... [2]

**Scenario 4**  
**Questions 6, 7 and 8**

Brunei Computers has decided to close down some of the stores which sell computer hardware. This is because it is expecting many customers to use its online shopping website.

Brunei Computers currently has separate databases for its computer sales records and its customer details. Both contain personal details of the customers.

Customers are allowed to pay their bill at any point before the end of the month. If they do not then the money is automatically taken from their credit card. Each customer has a credit limit which they are not allowed to go above. No customer has a credit limit greater than \$2000 or less than \$500.

Among the customer details kept by the company are a seven character customer ID consisting of a letter followed by six digits, 16 digit credit card number and their credit limit as well as other details.

A systems analyst has been invited to look at the existing system and suggest improvements which could be made.

The system already has a built in check to prevent duplication of IDs and also has existency and presence checks built in.

- 6 (a) Well designed websites have good features such as suitable fonts, easy navigation and pleasing colour systems.

*For  
Examiner's  
Use*

Describe **four** other features of a website designed specifically for online shopping.

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4 .....

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..... [4]

(b) As stores have closed, changes in employment have occurred as opposed to changes in working patterns.

*For  
Examiner's  
Use*

Describe **four** of these changes.

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..... [4]

- 7 (a) The systems analyst has decided that the sales records and the customer records should be combined into a relational database system.

*For  
Examiner's  
Use*

Using this scenario, describe **five** features of a relational database.

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..... [5]

(b) Give **three** reasons why a relational data base would be better than two separate flat files.

*For  
Examiner's  
Use*

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2 .....

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3 .....

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..... [3]

8 (a) Additional validation rules would need to be designed.

For  
Examiner's  
Use

Using the scenario, describe **three** additional rules which could be used. Do not use the same rule twice.

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[6]

(b) After the system has been created, the validation rules will need to be tested.

Using the customer's credit limit as an example, describe **three** testing strategies which could be used. For each strategy identify an amendment to the validation rule that could be made as a result of the testing producing unexpected results.

*For  
Examiner's  
Use*

Strategy 1 .....

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Amendment .....

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..... [3]

Strategy 2 .....

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Amendment .....

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..... [3]

Strategy 3 .....

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Amendment .....

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*For  
Examiner's  
Use*

**Scenario 5**  
**Questions 9 and 10***For  
Examiner's  
Use*

Mr Devlin is the principal of a college of education. He is concerned that the college is not attracting a sufficient number of students to its courses. He wants to advertise the courses offered by the college.

He is encouraging the teachers to record details of the students they teach. To begin with, he just wants the teachers to record student test marks. He does not want additional data such as exam results or attendance records to be recorded.

9 There are three types of advertising; business, product and service advertising.

Name and describe the type of advertising that Mr Devlin will use to advertise the college courses.

Name .....

Description .....

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[3]

*For  
Examiner's  
Use*

10 Describe **four** ways in which the test scores data could be manipulated and for each way describe how it could then be used.

For  
Examiner's  
Use

Way 1 .....

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Use .....

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Way 2 .....

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Use .....

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Way 3 .....

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Use .....

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Way 4 .....

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Use .....

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[8]



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