



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/12

Paper 1

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 **18** printed pages and **2** blank pages.



Scenario 1
Questions 1, 2 and 3

Computer Export Sales is a rapidly expanding computer manufacturer based in Northern Europe. Joshua is the manager of a large department of sales staff. Rajvinder is a member of the sales staff. The sales staff make most of their sales by phoning potential customers and trying to persuade them to buy their computers. Joshua has been informed by his directors that it would save the company money if some of the sales staff were to work from home. Rajvinder has agreed to work from home.

At the moment when she completes a sale Rajvinder sends a sales agreement to the customer to sign. The customer then posts it back to Joshua. In future, Joshua will fax a copy of this document to Rajvinder for her records. Joshua is undecided about whether to use an electronic faxing system or provide a fax machine for Rajvinder to use at home.

One of the drawbacks to a sales person of working from home will be the increase in costs. For example, the sales person will need to pay to have their central heating on during the day because it can get very cold in winter.

1 Give **three** reasons why the company contacts potential customers by phone rather than advertising on a website.

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..... [3]

2 Describe how microprocessor control is used in a central heating system.

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..... [5]

3 (a) Describe **three** personal characteristics that the sales staff would need to have before Joshua would recommend them to work from home.

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..... [3]

(b) Other than heating costs, describe **three** drawbacks to Rajvinder of working from home rather than working in the office.

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..... [3]

(c) Describe **three** benefits to the company of sales staff working from home rather than working in the office.

1

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(d) Describe **three** benefits to the company of using electronic faxing rather than traditional, manual faxing.

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Scenario 2
Questions 4 to 9*For
Examiner's
Use*

Mendoza Electricity Group (MEG) is a company in Argentina which sells electricity.

The company operates a call centre for customers who have questions about their bill or wish to pay their bills by phone using a credit or debit card. The call centre operators have to be adaptable in their working patterns and some of them have to jobshare.

The company has a computerised payroll system for paying employees. A sequential file is used for the master and transaction files. Although the payroll is only run every month, the company likes to update its master file every week in terms of additions, changes and deletion of records.

This system allows workers in the payroll department to have access to the personal details of all employees in the company. They often have to produce reports regarding the salaries earned by employees. There are social and ethical implications which arise because of this.

Maria, the manager of the payroll department uses time management software for many aspects of planning her work.

- 4 When a person applies to be a customer of MEG, an application form has to be completed on paper so that their details can be entered on to the computer system.

*For
Examiner's
Use*

Using features of the form as examples, explain the benefits of a well designed application form.

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- 5 The call centre system for dealing with customer calls uses third party control with CTI software on its telephony server.

Describe **four** features of such a system.

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..... [4]

- 6 (a) Describe what is meant by job sharing.

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(b) Describe **two** benefits to the company of workers job sharing.

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..... [2]

For
Examiner's
Use

(c) Describe **two** drawbacks to the company of workers job sharing.

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(c) Explain why summarised information does not always safeguard personal information.

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..... [2]

8 (a) Describe what is meant by an ordered sequential file.

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(b) Describe **five** steps in the weekly updating of the master file.

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9 Describe **three** steps that Maria would take when using time management software to arrange a new meeting.

*For
Examiner's
Use*

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..... [3]

Scenario 3
Questions 10 and 11

Oxbridge Examination Board is a small examination board which is in the process of introducing online marking for use by its examiners. Each question paper will have a unique barcode. Centres will send question papers to a scanning unit which will scan the question paper into the system. OCR will be used to read the centre number and candidate number so that these can be matched with the bar code number of the paper. As the examiner marks the question paper, the marks for each question will be entered and the computer will calculate the total mark for the candidate.

The input will be the examiner's mark for each question and the output will be the candidate grade.

The last part of the development of this system will be the creation of a database to store candidates' results.

Paul, the Marking Director, has employed Joseph, a systems analyst, to investigate the current system of processing results and design the new system. After he has finished collecting information about the current system Joseph will need to record this information. He has decided to use a data flow diagram.

When the system has been implemented it will need to be checked. To do this Paul and Joseph have decided to evaluate the system by inviting examiners to mark papers in the Board's offices.

10 (a) Describe how a check digit would be used to test the validity of the bar code number of the examination paper.

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(b) Describe **three** steps in the online marking process in order for the computer to be able to record the result for each candidate.

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(c) Describe **three** benefits to the examination board of online marking.

For
Examiner's
Use

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11 (a) Using examples from the scenario, name and describe, including their use, **three** components of a data flow diagram.

Name 1

Description 1
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Name 2

Description 2
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Name 3

Description 3
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..... [6]

(b) Having completed the analysis phase, Joseph needs to design the file structure.

Give a reason why each of the following aspects of file structure needs to be designed.

Field name

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Field type

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Field length

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Validation rules

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Key field

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[5]

For
Examiner's
Use

(c) When the new system is developed it will need to be tested. One way of doing this is to use live data.

For
Examiner's
Use

Explain what live data is and, using examples from the scenario, describe **three** steps in the use of live data to test this system.

Live data

Step 1

Step 2

Step 3

[4]

(d) After the system has been tested Joseph will need to produce an evaluation of it.

Describe **three** methods of obtaining feedback from examiners using the new system and for each give a different drawback of the method.

For
Examiner's
Use

Method 1

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Drawback 1

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Method 2

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Drawback 2

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Method 3

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Drawback 3

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[6]

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