UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY   **9713/01**

Paper 1   **May/June 2009**

1 hour and 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 **12** printed pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

Scenario 1
Questions 1 and 2

Midtown Bank in the UK operates an online banking system. Some customers have had difficulties when using this system and so the bank has introduced phone banking. The bank has a call centre in Mumbai, India.

When using phone banking, customers are asked to provide the same personal details as when using the online system. Customers are asked to provide three characters from their password. These are never the same three characters in successive logins.

The bank stores a lot of personal information about its customers.

9713/01/M/J/09

1 **(a)** Identify **two** items of information, other than their password that customers might be asked to provide when using the systems.

....

....

....

....

.... [2]

(b) Give **two** reasons why customers are asked to type in only three characters from their password.

....

....

....

....

.... [2]

(c) Explain why the company has its call centre in Mumbai and not in the UK.

....

....

....

....

.... [2]

(d) Explain why a customer might be frustrated when using an overseas call centre.

....

....

....

....

.... [2]

2 **(a)** Discuss the effects that the introduction of online banking has had on the bank's employees.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

(b) Call centre operators sit at computer terminals for long periods of time. Describe how health problems result from this computer use.

....

....

....

....

....

....

....

....

....

....

....

.... [5]

(c) Explain the social and ethical implications of bank workers being able to access customers' personal information.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

(d) Describe some of the security threats that the bank and customers must guard against when using online banking.

....

....

....

....

....

....

....

....

.... [4]

Scenario 2
Questions 3 and 4

The July 23rd Hospital in Cairo is improving its existing computer system to make it more efficient. They currently have separate systems for storing:

- staff records
- payroll records.

One single database is required which will store all this data.

A systems analyst is being employed to analyse the existing system and then design a new system.

9713/01/M/J/09

3 **(a)** Describe **three** different methods the systems analyst could use to collect information about the existing system and describe situations where each could be used.

....

....

....

....

....

....

....

....

....

....

....

....

[6]

(b) The existing payroll system stores the data in an ordered sequential manner so that it can be updated monthly. Describe how the master payroll file is updated using a transaction file containing details of workers' records for amendments, deletions and insertions.

....

....

....

....

....

....

....

....

....

....

....

[6]

4 **(a)** The systems analyst has decided that the staff records and the payroll records should be combined into a relational database.
Describe what a relational database is.

....

....

....

....

....

....

....

....

....

....

....

.... [5]

(b) Explain why the systems analyst has decided that a relational database would be preferred to two separate files.

....

....

....

....

....

....

....

.... [3]

(c) Validation rules will need to be designed. Using examples of fields that would be found in the hospital's payroll file, describe the validation checks which could be needed.

....

....

....

....

....

....

....

....

....

....

....

....

[6]

(d) After the system has been created it will need to be tested. Using examples of payroll data, describe this testing and how any needed improvements would be identified as a result.

....

....

....

....

....

....

....

....

....

....

....

....

[6]

Scenario 3
Question 5

East African Motors manufacture cars in Nairobi. Their factory is fully automated using robot arms to assemble cars.

The main car sales showrooms are in Nairobi and Mombasa in Kenya, Kampala in Uganda and Dar es Salaam in Tanzania. Their head office is in Nairobi. Often the sales people feel that certain updates should be made to the website by the company's programmers. However as many of the programmers work from home they can sometimes be difficult to contact.

The sales people have suggested that the company provide the programmers with appropriate video conferencing equipment. This would enable them to hold regular meetings with the programmers.

5 **(a)** Name four robotic arm attachments (end effectors) and for each one describe the use it would be put to.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [8]

(b) **(i)** Identify all the hardware a programmer would need in order to take part in a video conference.

....

....

....

....

.... [2]

(ii) Describe the steps the programmer would take to participate in the conference.

....

....

....

....

....

....

.... [3]

(c) Discuss the advantages and disadvantages to the programmer of working from home.

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]