Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

9201779980

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY **9713/13**

Paper 1 **October/November 2016**

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, glue or correction fluid.
You may use an HB 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.

Scenario 1

Questions 1 and 2

Paraiso College has a large number of students who attend classes at three campuses.

A large number of different courses are available covering many subject areas. The technology faculty is very well equipped and supports students who are involved in completing a number of different projects.

Each student at the college is issued with a plastic card containing information stored on a magnetic stripe. This card is used to gain entry to each of the college campuses.

Students at the college need to use the internet in order to find background information for their project work. A large amount of information will be available when they search the internet.

The Technology department at the College has decided to produce a handbook detailing the equipment that is available for use by students. The handbook needs to be as accurate as possible because it will be used as a reference by students in the department.

1 **(a)** The college provides a number of devices which produce hardcopy. Describe **three** of these devices that could be used by the students in their project work, explaining what each device would be used for.
Each use must be different.

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(b) (i) Explain the drawbacks of using magnetic stripe cards to gain entry to the college.

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(ii) Explain the different ways the card could be used by both the students and the college authorities.

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(c) Explain how students can evaluate the reliability of information resulting from a search on the internet.

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2 Describe, in detail, how the content of the handbook can be checked to ensure that it is as error free as possible.

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Scenario 2

Question 3

Intweb is a company that specialises in creating and managing webpages for other companies and organisations.

Spreadsheet software is used to store details of customer accounts. A word processor is used to produce communications with customers.

Other software is used to create the items (assets) for inclusion in the web pages.

The data stored on Intweb's websites needs to be secure. The staff who develop the software also need to be aware of the potentially sensitive nature of the data stored.

3 **(a)** Apart from those in the scenario, describe how **five** other types of software could be used to create the assets for the web pages.

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(b) **(i)** Other than physical methods, describe **two** ways of ensuring the security of the data on the websites.

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(ii) Five security/privacy issues have been described below. In each case, name which issue is being described.

Obligation arising under common laws where a person is obliged not to disclose information to a third party.

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Employees must be loyal to their employers for as long as they work for them.

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Information is stored about individuals without actually naming them.

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Personal details about individuals are combined to provide information in such a way that individuals cannot be identified.

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Provides a legal framework to protect an individual's information.

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Scenario 3

Questions 4 and 5

Nistoy is a car manufacturer.

One model that it produces is called the Yaraven which is produced on a production line without the use of robots.

Another model, the Aymic, is produced on a production line that makes full use of industrial robots.

The robotic production line for the Aymic has been so successful that the management of Nistoy have decided a similar system should be introduced to produce the Yaraven.

Liene is the systems analyst who has been asked to oversee the automation of the Yaraven production line.

[Turn over

4 **(a)** The robots used on the Aymic production line were very expensive to buy.
Describe in detail **two** advantages to the company of using robots on a production line.

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(b) The engine compartment of the Aymic needs to have two new holes drilling in it so that a windscreen washer can be fitted.
Describe how a programmer would program the robotic arm to drill the holes in the correct position.

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5 **(a)** Describe each of the following methods of implementation that Liene could use and explain how each would be used in the car factory.

Parallel running:

Description .....

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Method of Use .....

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Direct changeover:

Description .....

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Method of Use .....

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Phased implementation:

Description .....

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Method of Use .....

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(b) Discuss advantages and disadvantages to the workers of the introduction of robots to the Yaraven production line.

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Scenario 4

Questions 6 and 7

The government of a large region of a country has a number of departments. One of these departments is called Youngov.

Youngov is concerned with young people and their problems.

Youngov collects data annually and creates graphs and charts to make the data more easily understood.

Another government department is concerned with the payroll.

6 **(a)** For each of the following sets of data, explain why the type of chart or graph has been chosen.

The number of young people in each age group (0–5, 6–10, 11–15 and 16–20).
Type: bar chart

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The proportion of young people in each age group (0–5, 6–10, 11–15 and 16–20).
Type: pie chart

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The number of young people in different types of educational institution (first school, secondary school, college, university) compared with the previous year.
Type: comparative bar chart

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The number of 18-year-old pupils in full time education in each of the last ten years.
Type: line graph

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(b) One of Youngov's responsibilities is to consider the health and safety issues faced by young people who are using computers.
Apart from RSI, describe **three** other health issues that should be considered.

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7 The systems analyst who was responsible for the design of the payroll system had to decide between using a sequential access filing system and a random access filing system.

(a) Compare and contrast the use of a sequential access filing system and a random access filing system.

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(b) Describe how the payroll file is updated using sequential access for the master and transaction files.

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