Cambridge International AS & A Level

CANDIDATE NAME
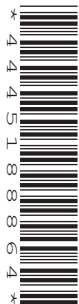
CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **May/June 2020**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 90.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Blank pages are indicated.

[Turn over

1 **(a)** Tick the most accurate statement referring to the internet.

	✓
The internet is a collection of web pages which can be accessed using a web browser	
The internet is the global system of interconnected computer networks	
The internet is only accessed using a switch	
The internet is an internal restricted access network	

[1]

(b) Tick the most accurate statement referring to the services the internet provides.

	✓
Word processing is a service only accessed using the internet	
Spreadsheet software is a service only accessed using the internet	
The World Wide Web is a service only accessed using the internet	
Email is a service only accessed using the internet	

[1]

(c) The internet is a type of WAN. Describe what is meant by a WAN.

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2 **(a)** Tick the most accurate statement referring to video files.

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It is only possible to export a video file using the file format it has been created in	
Video files are often stored in jpeg format	
It is possible to convert a video file into a gif format	
It is **not** possible to insert a still image into a video file	

[1]

(b) Tick the most accurate statement referring to the use of features of video editing software.

	✓
It is **not** possible to alter the speed of a video once it has been saved	
Trimming a video clip is achieved by removing unwanted footage	
It is **not** possible to add sound to a video once the video is finished	
An aspect ratio is the number of frames in a section of a video compared to the total number of frames	

[1]

3 BNMA, a large banking organisation, uses management information system (MIS) software in its day to day business concerns.

Without referring to what MIS consists of, or to the specific role of the MIS manager, explain how BNMA could use this MIS software.

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4 Chung and Fai both work at the Vacation Hotel. Chung told Fai that the hotel had just installed a car park barrier system to prevent local shoppers from using the car park. He told her that the manager had said that it was a computer-controlled system. Pressure sensors have not been used and it is impossible for the barrier to lower itself on to a car.

Describe, in detail, how such a system would operate both for a guest arriving at the hotel and for a guest leaving the hotel.

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5   Companies often carry out investigations into the public's likes and dislikes. Investigations such as this can be done using direct sources or indirect sources of information.

(a) Describe the advantages of gathering data from indirect data sources.

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(b) Describe the disadvantages of gathering data from indirect data sources.

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6 Joanne owns a store which sells films as DVD and blu-ray discs. Each disc has a six-character code number and each customer has an eight-character customer number. She has developed a database system which contains information about the films. Each record contains the following data:

Film title, director, code_number, DVD (Y/N), date_of_sale, customer_number.

Describe the features of an appropriate online data entry form for one film which would, where appropriate, allow the user to enter data by clicking the mouse rather than entering text.

Do **not** draw the screen and data entry form in your description.

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7 A program written in a simple high level programming language has a mistake in it.

Line 20 should say LET A = X + Y, but the program was typed as:

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10   INPUT X, Y
20   LE A = X + Y
30   PRINT X, " + ",Y, " = ", A
40   END
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Describe the **two** ways the program, including the error, could be translated so that it runs on a computer.

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8 The North Indonesian Motor Company makes cars in the city of Jakarta. It has a large factory producing the components, for the cars in the city of Surabaya. Dian is the director of communications in Jakarta. He has been asked by the other directors to set up a video-conference so that they can communicate with the directors based at Surabaya.

The directors in both cities currently use computers in a LAN to carry out their work.

(a) Give reasons why the current arrangement of computers would not enable Dian to set up a video-conference and explain how he would overcome this problem.

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(b) Describe how codecs would be used in the transmission of data within a video-conference.

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9   There are two types of encryption, symmetric and asymmetric.

   (a) Describe the use of public keys and private keys when used in the asymmetric method of encryption.

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   (b) Apart from the types of keys used, give **two** reasons why symmetric encryption is preferred in certain situations.

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10 Lastri uses spreadsheet models for her company. She uses them to forecast trends of sales of particular products as well as forecasting the company's annual income, expenditure and profits.

By weighing up the advantages and disadvantages, evaluate the effectiveness of spreadsheet models when used specifically for this type of forecasting.

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11   Describe what is meant by normalisation. Include in your description the properties of first normal form (1NF) and how a table in first normal form can be converted to second normal form (2NF).

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12 Sujatmi runs a company which stores its payroll records and personal details of its workers in two flat files. She has been told that these files should be converted into a relational database.

By weighing up the advantages and disadvantages, evaluate the differences between a flat file database and a relational database which would help Sujatmi make her decision as to which to use.

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13 Pramana has a PC which has a fixed hard disk drive. In order to increase the storage capacity of the computer, he is trying to choose between using a portable hard disk drive and storing his data in the cloud.

By weighing up the advantages and disadvantages, evaluate the use of cloud storage compared to using a portable hard disk drive.

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14

The pie chart shows the land areas of seven continents. In its present form it is not providing any information.

(a) Describe, using examples related to this scenario, how you would improve this chart so that it will provide information which could be used by geography students in a school.

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Please turn over for Question 14(b).

(b) Some people are very critical about pie charts.

Describe the disadvantages of using pie charts to represent data.

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