



Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

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0296975089

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

May/June 2019

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number in the spaces at the top of this page and any additional pages you use.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

No marks will be awarded for using brand names of software packages or hardware.

Answer **all** questions.

Any businesses described in this paper are entirely fictitious.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **17** printed pages and **3** blank pages.



- 1 Data can be stored on **Magnetic**, **Optical** or **Solid state** media.
Tick the most appropriate type of medium for each of the examples.

	Magnetic (✓)	Optical (✓)	Solid state (✓)
Blu-ray disc			
Hard disk			
Pen drive			
Flash memory card			

[4]

- 2 Tick the most appropriate type of computer that matches each description.

	Desktop (✓)	Laptop (✓)	Smartphone (✓)
A portable computer that would most easily fit into your pocket			
A computer that is not powered by batteries			
A computer that has the smallest screen			
A portable computer with a keyboard and with a built-in 15 inch monitor			

[4]

- 3 A bank has trialled the replacement of Magnetic Ink Character Recognition (MICR) for the details at the bottom of the cheques with bar codes.

Describe **two** advantages of using Magnetic Ink Character Recognition (MICR) rather than bar codes when processing cheques.

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[2]

4 Truck repair shops tend to use dot matrix printers to produce their invoices.

Identify **two** advantages of using a dot matrix printer rather than a laser printer in this environment.

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[2]

5 A computer contains system software and applications software.

(a) Explain what is meant by system software.

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[1]

(b) Explain what is meant by applications software.

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[1]

(c) Circle **two** types of system software.

- | | | |
|------------------------|--------|------------------|
| Actuator | Linker | Operating system |
| Photo-editing software | Sensor | Spreadsheet |

[2]

6 Phishing, pharming and smishing can affect the security of your data.

For each of these security issues describe the methods which you could use to try to prevent them.

(a) Phishing

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[2]

(b) Pharming

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[2]

(c) Smishing

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[2]

7 A number of devices are used to enable computers to communicate within a network. Two of these devices are hubs and switches.

(a) Compare and contrast the use of a hub and a switch.

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[4]

(b) Bluetooth is an alternative method of allowing computers to communicate with other computers and devices.

Describe how a tablet computer can connect to a printer using Bluetooth.

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[4]

- 8 Tawara Health Centre is creating a new online appointment system for its patients.

The developer has created a table showing part of the file structure of the new database.

Field name	Data type	Field length	Comment
Medical_ID_number	Numeric: integer		12-digit unique number
Date_of_birth	Date/Time		dd/mmm/yyyy
Family_name	Text	10	
Doctor_name	Text	20	
Appointment_time	Date/Time	5	hh:mm
Contact_telephone_number	Text		01617151234
Current_medication	Text	20	
Blood_type	Text	3	A, O, AB, B Each can be + or –

- (a) Apart from presence check, for each field, name an appropriate validation check that could be used. Your answer should be different in each case.

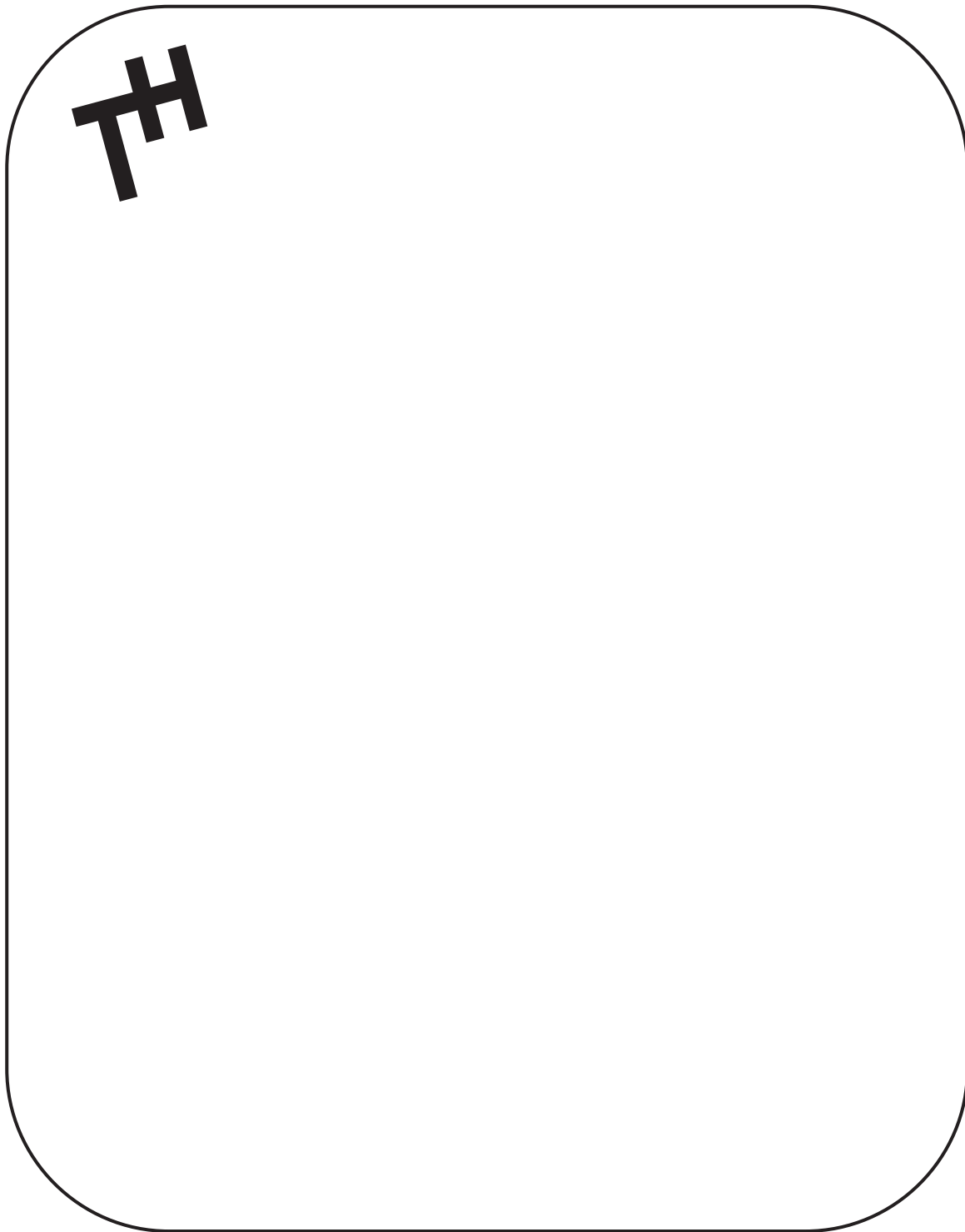
Field name	Validation check
Medical_ID_number	
Blood_type	
Date_of_birth	
Contact_telephone_number	

[4]

- (b) Referring to the fields in the table, name the most appropriate field that could be used as a primary key.

..... [1]

- (c) Using the fields given in the database complete the design below showing a suitable online data entry form for the receptionist to fill in.



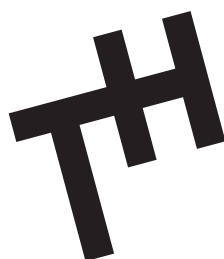
The image shows a large, empty rounded rectangular box with a black border. In the top-left corner of the box, there is a stylized logo consisting of the letters 'T' and 'H' in a bold, blocky font. The 'T' is on the left and the 'H' is on the right, with a horizontal bar connecting them. The rest of the box is blank, intended for the student to design an online data entry form.

[6]

- (d) The health centre has a new logo that appears on their online data entry form. The developers originally produced a logo and then had to change it so that it could be used appropriately on the online data entry form. The original logo is shown before the changes and the new logo after the changes.



Before



After

Describe the changes that have been made to the original logo to create the new logo.

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[4]

(e) The doctors in the health centre use an expert system to help them diagnose illnesses. The symptoms of the patient’s illness are typed in by the doctor.

Describe the processing that the system uses so that it can suggest possible illnesses.

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[5]

- 9 A large city centre hotel uses a computer-controlled barrier for entry into its car park. A light sensor is used to detect the presence of a car and prevent the barrier from dropping onto the car.

Describe how a microprocessor uses the data from the sensor to control the car park barrier.

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[6]

10 Name **three** physical safety issues associated with the use of ICT equipment, and for each one, suggest a possible method to help to prevent the issue. The methods should be different in each case.

Issue 1.....

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Method.....

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Issue 2.....

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Method.....

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Issue 3.....

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Method.....

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[6]

11 A small library is situated in a village. When a book is borrowed from the library the borrower presents the book and their library card to the librarian.

(a) Discuss the advantages and disadvantages of the different input devices which could be used by the librarian to record a book being borrowed.

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[6]

- (b) Sometimes specialist books are needed in the library. When this happens a message has to be sent to the main library in the town. The message can either be sent by email or by physical fax.

Describe the advantages and disadvantages of using email compared with sending a fax.

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[6]

12 As student data is entered into a school registration system it needs to be verified.

(a) Name **two** types of verification.

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[2]

(b) Explain using examples why it is necessary to carry out validation as well as verification for this system.

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[4]

13 (a) Explain the term function with reference to spreadsheets.

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(b) State the purpose of absolute cell referencing and give the symbol that is used to indicate absolute cell referencing.

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..... [2]

(c) Explain why named ranges are sometimes used in spreadsheets.

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14 Several EFTPOS terminals have recently been installed in the ticket booking area of a train station.
Describe the inputs and outputs of such a system when purchasing a ticket.

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[6]

- 15 Peter is researching his family tree for his history project. He has the choice of using historical records stored in the local library or the internet to find the necessary information.

Apart from not having to travel, discuss the advantages and disadvantages to Peter of using historical records stored in the local library rather than the internet.

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