Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY   **0417/12**

Paper 1 Theory   **February/March 2020**

2 hours

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.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [   ].
- No marks will be awarded for using brand names of software packages or hardware.

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

1   A list of hardware items is given.

| 3D printer | Actuator | LCD monitor | Memory stick | Mouse |
| RAM | Touch screen | Video card | Webcam | Wide format printer |

(a) Identify **two** input devices from the given list.

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[2]

(b) Identify **two** internal hardware devices from the given list.

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2..

[2]

2   Tick (✓) whether the following statements refer to the **internet** or an **intranet**.

	internet (✓)	intranet (✓)
This type of network is public		
This is the more secure type of network		
This type of network is global		
This type of network is more likely to be monitored		

[2]

3   Chess players can use expert systems to help them practise chess moves.

Name **two** other applications which involve the use of expert systems.

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2 ....

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[2]

4 Smart technology is increasingly being used in everyday life. Many people are now using smart devices such as smartwatches.

(a) Tick (✓) whether the following statements most appropriately refer to a **desktop computer**, a **tablet computer** or a **smartwatch**.

	desktop computer (✓)	tablet computer (✓)	smartwatch (✓)
A computer made up of separate units			
Is an example of wearable technology			
A portable device that allows text to be typed relatively easily			
Most easily used for fitness and health monitoring by runners			

[4]

(b) Smartphones are more likely to be used than laptop computers for everyday ICT use.

Describe **three** advantages of using a smartphone rather than a laptop computer.

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[3]

5 A school examinations officer has set up a spreadsheet of candidates for the IGCSE examinations.

Part of the spreadsheet is shown:

	A	B	C	D	E	F
1	**Subject examination entries**					
2	**0417**	**0486**	**0500**	**0580**	**Subject code**	**Subject name**
3	ICT	English Lit	English	Mathematics	0417	ICT
4	E	E	E	E	0486	English Lit
5		E		E	0500	English
6		E		E	0580	Mathematics
7	E	E		E		
8	E	E	E	E	**Number of candidates**	
9		E		E	0417	8
10	E	E		E	0486	12
11	E	E		E	0500	5
12	E	E	E	E	0580	12
13		E		E		
14	E	E	E	E		
15	E	E	E	E		

The formula in cell A3 is IF(A2<>"",VLOOKUP(A2,E3:F6,2),"")

(a) Explain what the formula in cell A3 does.

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(b) The examinations officer is planning to change the range E3 to F6 in the formula to a named range.

    (i) Explain why he should do this rather than using the cell references.

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        .... [3]

    (ii) Give an example of an appropriate name he should give the range.

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        .... [1]

(c) A formula has been placed in cell F9. The formula is COUNTIF(A4:A15,"E")

Explain what the formula in cell F9 does.

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.... [2]

6 A teacher has created a hierarchical file structure to save the registers and marks of each of her classes on her laptop computer. Part of the structure is shown:

C:
 └── 📁 Work
       └── 📁 Class_A1
             ├── 📁 Examination_Marks
             ├── 📁 Registers
             └── 📁 Class_Reports
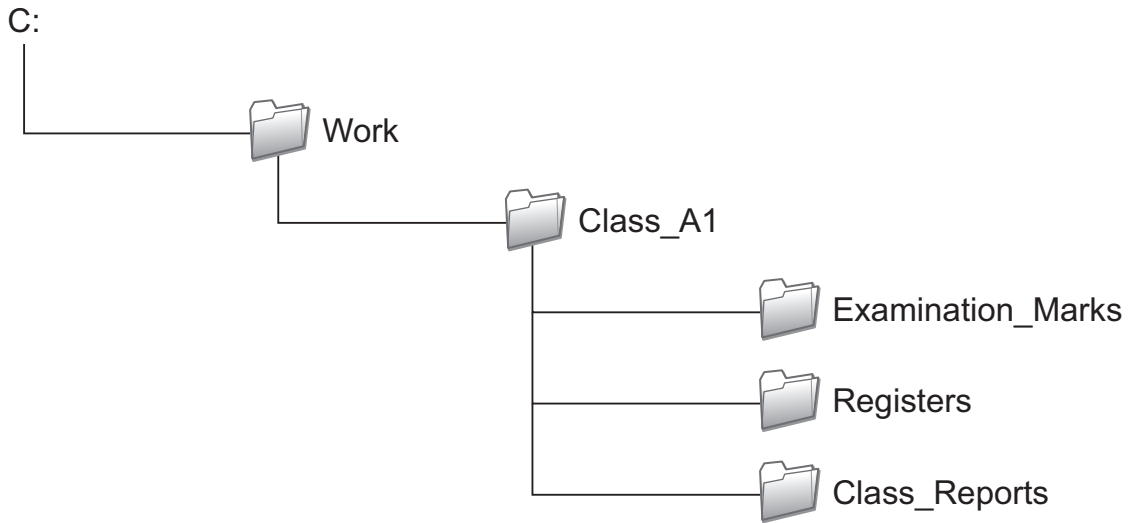
(a) Write down the file path to locate a document which is stored in the folder Examination_Marks.

C: ....

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.... [3]

(b) The teacher could have saved the document as a .txt or an .rtf file format.

Describe what is meant by .txt and .rtf file formats.

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(c) Explain the differences between the two file formats.

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(d) A master document has been created. The teacher will mail merge the personal details of each student into the document.

Explain why mail merged documents are used.

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.... [4]

[Turn over

7 A company is considering developing a laptop computer that only uses biometric methods to authorise user access to this laptop computer. The developers are considering using facial recognition.

(a) Explain, giving other examples, why biometric methods are considered to be a more secure way of authorising access to the laptop computer rather than typing in passwords.

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(b) Describe the disadvantages of using facial recognition to authorise access to the laptop computer.

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8 A headteacher plans to use a computer database to keep records of the members of staff that teach in her school. She must choose between using a flat file database or a relational database.

(a) Explain the differences between a flat file database and a relational database.

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.... [2]

(b) The school keeps details of the teachers in one file and the subjects they teach in another file. A teacher teaches more than one subject.
Describe the steps the headteacher would need to take to create a relational database from this data.

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9 Documents use headers, footers and margins.
The statements refer to a **header**, a **footer** or a **margin**. Tick (✓) the most appropriate term for each statement.

	header (✓)	footer (✓)	margin (✓)
Text entered that can appear at the top of each page automatically			
An area between the main content of a page and the edge of the page			
An additional space between facing pages			
Text entered that can appear at the bottom of each page automatically			

[4]

10 Arjun is taking a gap year between his studies and will be travelling through Kenya. He needs to remain in contact with his parents and is considering using either a cell phone or VoIP.

(a) Describe the benefits of using each of these communication methods to stay in contact with his parents.

Cell phone ....

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VoIP ....

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[4]

(b) From time to time Arjun's parents transfer money from their bank account to his bank account using online banking.

Identify **one** type of transaction they cannot do using online banking.

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(c) When Arjun logs onto his online banking he needs to enter his username and password. The system may also ask him to provide an answer to a security question.

Tick (✓) whether the following are appropriate examples of a security question or not.

	Appropriate (✓)	Not appropriate (✓)
How old are you?		
What is your mother's maiden name?		
What is your PIN?		
Which town were you born in?		

[2]

(d) Give **three** benefits of Arjun using online banking in this scenario.

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[3]

(e) Give **two** drawbacks of Arjun using online banking in this scenario.

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[2]

11 Robots are used in many car production lines.

Discuss how their use has affected the nature of employment in the car production industry.

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.... [6]

12 When people use the internet for shopping and banking it is essential that they use a website that has a secure server.

   (a) Describe the features of a web page that identify it as using a secure server.

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(b) As more and more people use smartphones as computer systems, security can be breached. Smishing and pharming are ways in which data can be compromised on a smartphone.

Compare and contrast smishing and pharming.

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13 A sales representative is planning a presentation about a new product. He is considering whether to use a multimedia presentation or to give a talk and hand out leaflets.

(a) Discuss the advantages and disadvantages of using a multimedia presentation rather than printed leaflets.

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(b) The sales representative decides to create a multimedia presentation and wishes to place an image of the new product on one of the slides.

Explain the steps he would need to take to do this.

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.... [4]

(c) He searches his company website to find a suitable image for his multimedia presentation. Part of the markup language from the web page to load the image is shown.

<img src ="New_product.jpg" alt="company logo">

When the markup is run, the words 'company logo' are displayed and not the image.

Explain why this may be the case.

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.... [2]

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