Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/12**

Paper 1 Theory **February/March 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.

1 (a) Tick the most accurate statement referring to batch processing.

	✓
The processing of data usually takes place when the computing resources are very busy	
It is used in the control of traffic lights	
It typically involves the use of sensors and control systems	
It is typically used in the printing of electricity bills	

[1]

(b) Tick the most accurate statement referring to real time processing.

	✓
It would be suitable for controlling a car park barrier	
It does **not** require an immediate response	
It is never used 24 hours a day for the same task	
It is where a group of transactions is collected over a period of time before being processed	

[1]

Theatres often use interactive processing to allow customers to book seats.

(c) Describe what is meant by the term interactive processing.

....

....

....

....

....

....

....

.... [3]

(d) Give reasons why interactive processing would be used instead of batch processing for booking seats in a theatre.

....

....

....

....

....

.... [2]

2 For each of the **two** tables below, tick the most accurate statement referring to the use of simulation in pilot training.

(a)

	✓
The running and maintenance costs of a flight simulator are far greater than those of an actual aircraft	
Dangerous situations can be simulated without putting the trainee pilot's life at risk	
It is more difficult to simulate adverse weather conditions in a flight simulator	
The level of noise in a flight simulator is far louder than in an aircraft	

[1]

(b)

	✓
The pilot has to be able to use spreadsheet software efficiently	
There is no limit to how many 'g' a simulator can subject a pilot to, and for how long	
The simulator response will always be exactly the same as an actual aeroplane, as there are so few variables	
Sometimes pilots become overconfident after training on the simulator	

[1]

3 Pardeep has a lot of confidential data on her desktop computer which she wishes to transfer to a backing storage device. She is not sure whether to buy an extra hard disk drive or a magnetic tape drive.

Evaluate, by weighing up the advantages and disadvantages, the use of a hard disk drive compared with a magnetic tape drive.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

4 By describing RAM and ROM, explain why a computer needs both types of memory.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [8]

5   Many businesses code data when storing information. A shop which sells shirts may wish to code the size and colour of each shirt, e.g. a yellow shirt with chest size 100 cm would be coded as 100Y.

Discuss the advantages and disadvantages of coding data.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

6   Many people have computers and devices in the home and in their cars that can be controlled using a gesture based interface or a dialogue interface.

Evaluate, by weighing up the advantages and disadvantages, these two user interfaces when compared to each other.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [8]

7 Here is part of a spreadsheet showing the earnings of a selection of workers at a company.

| E10 | ⋮ | ✗ | ✔ | fx | =D10*VLOOKUP(B10,jobrate,3,0) |

◢	A	B	C	D	E	F
1					Standard rate per hour	
2			As	Assistant	$12	
3			Se	Secretary	$20	
4			Cl	Clerk	$15	
5						
6	Worker ID	Job code	Job type	Hours worked this week	Wage paid this week	
7	42158P	As	Assistant	39	$468	
8	63119M	Se	Secretary	40	$800	
9	63214P	Se	Secretary	35	$700	
10	89261N	Cl	Clerk	36	$540	
11	97643M	As	Assistant	40	$480	

(a) The formula in cell E10 contains a named range, shaded in the spreadsheet.

Describe, step by step, how the named range was created.

....

....

....

....

....

.... [2]

(b) Explain, step by step, what the formula in cell E10 does.

....

....

....

....

....

....

....

....

....

.... [4]

(c) Give **two** reasons why a named range is used.

1 ....

....

....

2 ....

....

....
[2]

(d) Explain, step by step, how to perform a filter on secretaries earning more than $750.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

Here is the same spreadsheet showing the formula in cell C7, **VLOOKUP(B7,C$2:D$4,2,0)**.

| C7 | ▾ | ⋮ | ✗ | ✔ | *fx* | =VLOOKUP(B7,C$2:D$4,2,0) |

◢	A	B	C	D	E	F
1					Standard rate per hour	
2			As	Assistant	$12	
3			Se	Secretary	$20	
4			Cl	Clerk	$15	
5						
6	Worker ID	Job code	Job type	Hours worked this week	Wage paid this week	
7	42158P	As	Assistant	39	$468	
8	63119M	Se	Secretary	40	$800	
9	63214P	Se	Secretary	35	$700	
10	89261N	Cl	Clerk	36	$540	
11	97643M	As	Assistant	40	$480	

(e) By explaining what each part of the formula does, describe how it displays 'Assistant' in C7.

....

....

....

....

....

....

....

....

....

.... [4]

8   Describe the features of the encryption protocols TLS and SSL.

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

9   Data on a CD ROM is regarded as static data.

    Using another appropriate example, describe the characteristics of static data.

....

....

....

....

....

....

....

....

.... [4]

10 In a recent BBC news bulletin it was said:

'*It takes 82 seconds for cyber-thieves to ensnare the first victim of a phishing campaign, a report suggests.*'

'*Hackers exploit router flaws in unusual pharming attack.*'

Describe what is meant by:

(a) phishing

....

....

....

....

....

....

....

.... [4]

(b) pharming.

....

....

....

....

....

....

.... [3]

11 Explain why generic file formats are needed when using word processing software and spreadsheet software.

....

....

....

....

....

....

....

....

.... [4]

12 It is possible to use sound editing software to vary the sampling rate in an audio file.

Describe what is meant by sampling, sampling rate and the factors that should be considered when varying the sampling rate.

....

....

....

....

....

....

....

....

....

....

....

....

.... [6]

13 Gurjeet told his classmate Sunil "I'm going to search the internet to help me with my homework".
Sunil said "Surely you mean you are going to search the world wide web!"

Explain, in detail, the differences between the internet and the world wide web.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [8]

BLANK PAGE

16

BLANK PAGE