Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

3294028742

INFORMATION TECHNOLOGY **9626/11**

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 For each of the **two** tables below, tick the most accurate statement referring to the use of the internet for communication.

(a)

	✓
Instant messaging is a service similar to SMS provided by the internet	
Social networking sites allow messages to be posted, but not pictures or videos	
A blog allows anybody who reads it to also be able to edit it	
Chat rooms only allow one person to communicate with one other person	

[1]

(b)

	✓
Emails allow people to see each other when communicating	
Emails can be sent with somebody copied in without the other recipients knowing	
Emails always get an immediate response	
Instant messaging never results in the IM providers sending adverts to users	

[1]

(c) Video-conferencing is another way of using the internet for communication.

Describe how a manager in one branch of a company would set up a video-conference to communicate with managers in other branches.

You can assume that the hardware and software required has already been purchased. In your description you will need to identify what each manager would need to do.

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2 **(a)** Tick the most accurate statement referring to the use of compilers and interpreters.

	✓
An interpreter creates a single executable file that runs directly on the CPU	
It is easier to debug compiled code rather than interpreted code	
With a compiler it is harder to protect intellectual property as machine code is easy to understand	
It is more difficult for hackers to modify compiled code	

[1]

(b) Tick the most accurate statement referring to the use of disk formatting.

	✓
Disk formatting increases the number of fragments in a hard disk	
Disk formatting never removes viruses from a hard disk	
Disk formatting increases the storage capacity of a blank disk	
Disk formatting is used to fully prepare a hard disk for initial use	

[1]

3 Static information sources and dynamic information sources are often used for different purposes.

Define what is meant by static and dynamic data. Using a school or college as an example, describe situations which could use a dynamic information source and those where a static information source could be used.

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4 The digital divide often exists between people in developed countries and those in developing countries.

Describe what is meant by the digital divide and how it affects these countries.

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5 A sports club keeps records in a database of its members and the individual sports they play. It has the following tables of data:

Members' names
Members' contact details
Details of when they started playing the sport
All the possible sports which can be played by the members.

Names	Contact_details	Started_sport	Sports

(a) Complete the tables shown above, writing down examples of the **field names** for **three** of the fields in each table. Indicate the key fields in each table and the relationships that exist between each adjacent table. Indicate the type of each relationship. Some tables have one relationship and others have a maximum of two relationships. [8]

(b) Two of the tables could possibly be regarded as having a many-to-many relationship.
Using the example of the tables shown above, explain what is meant by a many-to-many relationship.

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6 Many companies use batch processing for producing workers' payslips.

(a) Describe, using payroll as an example, what is meant by batch processing.

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(b) Explain why batch processing is used instead of real-time processing for an application such as payroll.

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7 Designers of user interfaces tend to base their designs on what they interpret to be a user's mental model.

Evaluate, by weighing up the advantages and disadvantages, the use of a mental model to design a user interface.

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8 Explain how encryption protects data stored on a hard disk.

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9 By explaining what the purpose of each is, describe the differences between verification and validation.

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10 A researcher is interviewing some people. To begin with, she wants to record their personal details using a six-character code. For example, 47FT12 means the person is 47 years old, in full-time employment and left school after year 12.

Explain what the code 34PT10 means and why there may be problems with coding other people in this way. Include in your explanation ways of improving this method.

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11 Mary has been put in charge of the computerised school weather station. At the moment the system has a monitor to show the outputs. She wants to replace the monitor with a printer.

By weighing up the advantages and disadvantages, evaluate the system having a monitor rather than a printer.

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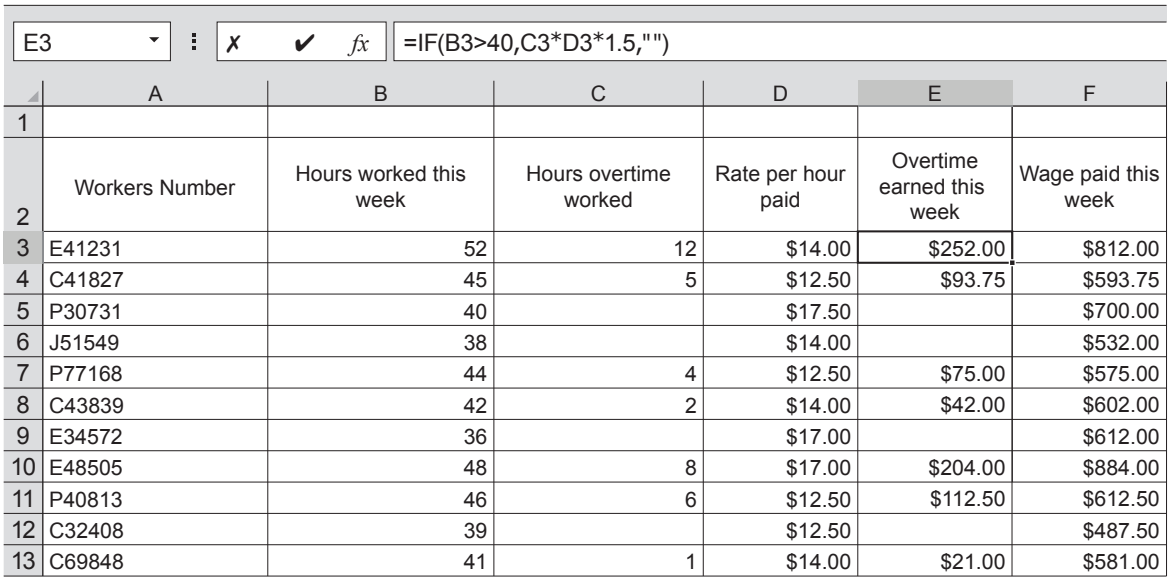
12 Here is part of a spreadsheet showing the wages earned by a group of workers in a company.



E3 ⋮ ✗ ✔ *fx* =IF(B3>40,C3*D3*1.5,"")

	A	B	C	D	E	F
1						
2	Workers Number	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week
3	E41231	52	12	$14.00	$252.00	$812.00
4	C41827	45	5	$12.50	$93.75	$593.75
5	P30731	40		$17.50		$700.00
6	J51549	38		$14.00		$532.00
7	P77168	44	4	$12.50	$75.00	$575.00
8	C43839	42	2	$14.00	$42.00	$602.00
9	E34572	36		$17.00		$612.00
10	E48505	48	8	$17.00	$204.00	$884.00
11	P40813	46	6	$12.50	$112.50	$612.50
12	C32408	39		$12.50		$487.50
13	C69848	41	1	$14.00	$21.00	$581.00

(a) Without referring to other cell references, explain, in detail, what every part of the formulae in cells E3 and E5 do. You may assume that the formula has been replicated down for all workers.

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(b) This spreadsheet has not been tested.

Describe the test plan you would use to make sure there are no errors in the formulae in column E of this spreadsheet. You can assume that the formula in column C works perfectly and does not need changing.

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(c) Using **only** the sort feature explain how you would be able to make the spreadsheet used in part **(a)** produce this display.

	A	B	C	D	E	F
1						
2	Workers Number	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week
3	P40813	46	6	$12.50	$112.50	$612.50
4	C41827	45	5	$12.50	$93.75	$593.75
5	P77168	44	4	$12.50	$75.00	$575.00
6	C32408	39		$12.50		$487.50
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9	C69848	41	1	$14.00	$21.00	$581.00
10	J51549	38		$14.00		$532.00
11	E48505	48	8	$17.00	$204.00	$884.00
12	E34572	36		$17.00		$612.00
13	P30731	40		$17.50		$700.00

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[Turn over

13 Computers are often used for environmental monitoring applications such as pollution in rivers.

Evaluate, by weighing up the advantages and disadvantages, the use of computers rather than humans in such scenarios.

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