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Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **May/June 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Calculators must not be used on this paper.

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.

Any businesses described in this paper are entirely fictitious.

This document consists of **14** printed pages and **2** blank pages.

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1 Tick the **four** most accurate statements referring to hardware and software.

	✓
Operating systems are examples of hardware.	
An Optical Mark Reader and a Magnetic Ink Character Reader are types of storage device.	
A scanner is a type of software.	
Hardware is another name for the physical parts of a computer system.	
A bar code reader is an example of an input device.	
The CPU of a computer is considered to be hardware.	
A device driver is a type of hardware.	
System and application are the names of two types of software.	
A dot matrix printer is an example of software.	
Applets and apps are examples of hardware.	

[4]

2 Tick the **four** most accurate statements referring to protecting the confidentiality of personal data.

	✓
You should use different passwords and PINs for different accounts.	
Storing personal data on removable media only and locking them away when not in use, is a good form of protection.	
Encryption prevents data from being accessed.	
A firewall always prevents unauthorised users from accessing confidential data.	
Installing spyware helps protect confidential data from unauthorised access.	
Banks are allowed to share personal data of customers with other customers.	
Confidential personal data is usually stored on DVD ROMs as this prevents it from being accessed.	
TLS is a cryptographic protocol used to protect personal data transmitted across a network.	
Users should always log off immediately after using a site where personal data has been typed in.	
Using public computers to access personal information is good practice as they usually have plenty of security.	

[4]

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3 When data is entered into a database it needs to be checked for accuracy. One of the methods used to help in this process is verification.

Compare and contrast the different methods used to carry out verification.

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4 Jasmine is carrying out a study of the effect of pollution on her local countryside. She intends to use data from direct data sources as well as indirect data sources.

Describe what is meant by direct and indirect data sources using examples from this scenario.

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5 Joseph has written a program using a high level language. He now needs to get it translated for use on his computer.

Compare and contrast the use of a compiler with an interpreter for this purpose.

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6 A number of schools in the Americas have introduced a BYOD (Bring Your Own Device) policy. This means that students are expected to bring their own device to school for use in lessons. This can encourage a digital divide within schools.

(a) Describe **three** ways in which this can widen the digital divide within schools.

1. .....

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(b) Describe **three** ways in which this situation could be rectified.

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2. .....

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	A	B	C	D	E	F	G	H
1								
2								
3								
4								
5			11					
6			7					
7	4	6	9	15	5			
8			6					
9			8					
10								
11								
12								
13								

Values | Formulae | Functions

Using examples from the spreadsheet above, describe in detail:

(a) Cells

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..... [2]

(b) Rows

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(c) Columns

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(d) Worksheets

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8 Here is a section of a database showing the wages paid and hours worked by some workers in a company.
New data is about to be entered but it will need to be validated. Validation rules will need to be created to make sure the data is sensible. Two validation rules would be appropriate for the **Telephone** field and one for the **Weekly wage** field. You can assume the wages shown include the minimum and maximum that the company pays.

J215VENUES

Family name	First name	Telephone	Weekly wage	Hours worked
Smith	John	01632 267145	220	47
Prudhomme	Pierre	01632 342016	250	51
Gonzales	Jose	01632 941368	260	42
Signusson	Lars	01632 643821	240	40
Thorsvald	Olaf	01632 811276	190	45
Mueller	Dieter	01632 351156	180	48
Lucio	Silvio	01632 281146	210	43
Boko	Peter	01632 444707	260	51
Ndlovu	Joseph	01632 319249	300	41
James	Peter	01632 860787	310	40
Gordon	James	01632 205775	280	40
McDonnell	Jamie	01632 430332	250	45
Kelly	Peter	01632 832287	290	50

Describe, using examples from the data shown, the validation rules that will be created. For each one, give examples of test data (do **not** include normal data) that would test the validation rule works and give reasons for each choice.

(a) Telephone:

(i) Validation rule 1 .....

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(ii) Test data .....

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Reason .....

..... [2]

(iii) Validation rule 2 .....

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(iv) Test data .....

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Reason .....

..... [2]

(b) Weekly wage:

(i) Validation rule .....

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..... [2]

(ii) Test data .....

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Reason .....

..... [2]

(c) Select an appropriate data type for the Telephone field, explaining why you have chosen it.

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(d) The data from this section of the database has been imported into a spreadsheet. This is because the manager wants to calculate the average wage earned by the workers who work more than 40 hours a week but less than 50 hours a week.

	A	B	C	D	E	F
1	Family name	First name	Telephone	Weekly wage	Hours worked	
2	Smith	John	01632 267145	220	47	
3	Prudhomme	Pierre	01632 342016	250	51	
4	Gonzales	Jose	01632 941368	260	42	
5	Signusson	Lars	01632 643821	240	40	
6	Thorsvald	Olaf	01632 811276	190	45	
7	Mueller	Dieter	01632 351156	180	48	
8	Lucio	Silvio	01632 281146	210	43	
9	Boko	Peter	01632 444707	260	51	
10	Ndlovu	Joseph	01632 319249	300	41	
11	James	Peter	01632 860787	310	40	
12	Gordon	James	01632 205775	280	40	
13	McDonnell	Jamie	01632 430332	250	45	
14	Kelly	Peter	01632 832287	290	50	
15						
16			Average	230		
17						

Write down the formula which should go in cell D16.

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You may use the space below for any working out.

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(e) Describe how the spreadsheet could be sorted so that Dieter Mueller is the first worker in the list and Pierre Prudhomme is the seventh.

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(f) The manager has decided that the name fields should be combined. He wants a name field containing the first name initial and the family name. Write down the formula that would give Jamie McDonnell's name as J McDonnell.

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You may use the space below for any working out.

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9 Some database systems use the indexed sequential method of accessing data.

Describe the features of indexed sequential access and how it is used.

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10 Magnetic Ink Character Recognition (MICR) and Optical Character Recognition (OCR) are often used in different ways for different purposes.

Evaluate the use of MICR and OCR for entering data from documents.

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11 Many people use their mobile phones for internet access.

Discuss the advantages and disadvantages of mobile networks.

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