

Cambridge  
International  
AS & A Level

**Cambridge International Examinations**  
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE  
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CENTRE  
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**INFORMATION TECHNOLOGY**

**9626/13**

Paper 1 Theory

**May/June 2017**

**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.

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.

- 1 Tick the **four** true statements referring to the use of data types when creating a database.

	✓
Boolean is a data type representing either of two states.	
Text fields cannot contain numbers.	
Numeric fields cannot contain text.	
Integer is a numeric data type used for storing decimal numbers.	
Date is a data type which can be used for storing images.	
The real number data type is used for fields containing whole numbers only.	
The numeric data type can be subdivided into different types of number.	
The alphanumeric data type can contain punctuation marks.	
The text data type is the easiest type of data to validate.	
Currency must be stored as text.	

[4]

- 2 Tick the **four** true statements relating to the use of normalisation when organising the attributes and tables of a relational database.

	✓
A table that has not got a unique key can still be in first normal form.	
Normalisation does not attempt to eliminate storing the same data in more than one table.	
Normalisation involves breaking down a table into less redundant, smaller tables.	
A table is in first normal form if it contains no repeating groups.	
A table is in second normal form if it is in first normal form and, additionally, does not have a composite primary key.	
A table in first normal form must use all the relationships, one-to-one, one-to-many and many-to-one.	
A database is in third normal form if it is in second normal form and each table has no non-key attributes that depend upon other non-key attributes.	
A third normal form table can still have non-key attributes dependent on other non-key attributes.	
Third normal form tables can still have non-key fields that do not depend on the primary key.	
Every table in a relational database must have a foreign key.	

[4]







- 5 Below is an extract from a spreadsheet showing the wages paid in one week to a group of workers. Any hours worked over 40 count as overtime. Overtime is paid at 1.5 times the normal rate.

	A	B	C	D	E	F	G	H
1								
2	Worker's name	Job type	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week	
3								
4	Johan Braun	Labourer	45	5	\$13.00	\$97.50	\$617.50	
5	Lisa Moran	Skilled	40		\$18.00		\$720.00	
6	Chi Li	Labourer	40		\$13.00		\$520.00	
7	Susan Armstrong	Labourer	46	6	\$13.00	\$117.00	\$637.00	
8	Luqman Hisham	Labourer	39		\$13.00		\$507.00	
9	Kanda Demir	Semi-skilled	40		\$15.50		\$620.00	
10	Paul Strong	Labourer	43	3	\$13.00	\$58.50	\$578.50	
11	Shoba Purushothaman	Semi-skilled	48	8	\$15.50	\$186.00	\$806.00	
12	Kulap Kaya	Semi-skilled	40		\$15.50		\$620.00	
13	Tony Fernandes	Skilled	40		\$18.00		\$720.00	
14	Halim Saad	Semi-skilled	51	11	\$15.50	\$255.75	\$875.75	
15								
16		Workers working overtime	5					
17								

- (a) Write down the formula which should be used in cell C16 in order to display the number of workers who worked overtime.

= .....

..... [4]

You can use the space below for any working you need.

- (b) Write down the formula which should be used in cell D4 in order to display the number of *Hours overtime worked* for Johan Braun. The formula should be in a form that can be easily replicated and should leave the cell blank if no overtime has been worked.

= .....

.....[5]

You can use the space below for any working you need.

- (c) Write down the formula which should be used in cell F4 in order to display the amount of money earned for working overtime for Johan Braun. The formula should be in a form that can be easily replicated and should leave the cell blank if no overtime has been worked.

= .....

.....[5]

You can use the space below for any working you need.

6 In a recent BBC news bulletin it was reported:

*The BBC has obtained exclusive figures from the financial ombudsman that show there have been nearly 100 complaints about “vishing” in the past three months.*

Describe what is meant by:

(i) phishing.

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[3]

(ii) vishing.

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[3]



7 Many people use computers to access services provided by the internet.

(a) Explain what is meant by the internet.

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..... [2]

(b) Describe **six** of the services that are provided by the internet.

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..... [6]

- 8 A recording company has produced a video of one of its famous singers. The video has been given to John to edit so that it will have a fully professional look. The soundtrack has been sent separately to the video file.

Describe how John would use the following features of video editing software.

Trimming .....

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Adding sound .....

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Adding captions .....

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..... [6]

9 Bruce works from home but is able to access company data using a virtual private network (VPN).

Describe the benefits and drawbacks for Bruce of using a VPN.

Benefits .....

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Drawbacks .....

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[6]

10 A school marks all its exams out of 100.

It has recently introduced a system of positive marking for students in years 12 and 13 whereby students will be awarded 10 marks for just sitting the exam and then, as normal, will be awarded further marks for correct answers.

After the papers have been marked, the school secretary will enter the marks into a student database together with the year the student is in and their date of birth, which must be entered in the form dd/mm/yyyy. It is acceptable for data to be omitted for certain students.

Apart from type check or length check, describe **four** different validation checks which should be carried out on the data to help prevent mistakes occurring.

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- ..... [8]

11 A manager of a small business wants to update her computer system. When considering which software to use, she has to choose between custom written software and off-the-shelf software.

Describe what is meant by these two types of software.

(a) Custom written:

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(b) Off-the-shelf:

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12 Below is part of a spreadsheet Deirdre has created to show her company’s profits.

▲	A	B	C	D	E	F	G
1		DIY Inc.					
2							
3			2012	2013	2014	2015	2016
4							
5		1st quarter	\$135,000	\$146,000	\$158,000	\$162,000	\$154,000
6		2nd quarter	\$142,000	\$149,000	\$161,000	\$167,000	\$157,000
7		3rd quarter	\$138,000	\$150,000	\$159,000	\$163,000	\$151,000
8		4th quarter	\$129,000	\$141,000	\$146,000	\$148,000	\$147,000
9							
10		Total profits	\$544,000	\$586,000	\$624,000	\$640,000	\$609,000
11							

Describe, giving reasons, the most appropriate type of graph or chart for displaying:

- (i) the company’s profits, throughout 2016 showing comparisons of each quarter.

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[3]

- (ii) the company’s profits, showing the trend for all four quarters in each year from 2012 to 2016.

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[3]

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