Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6040838104

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **October/November 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 in the spaces at the top of this page.
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.

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1 Tick the **four** most accurate statements about relational databases.

	✓
Duplication of data is avoided saving storage space.	
Every individual mistake in the database has to be manually corrected in all tables.	
It is easier to produce cross-tabular reports in relational databases than with flat file databases.	
The only two possible relationships are one-to-one and many-to-one.	
It is impossible to make mistakes when entering data into a relational database.	
Tables can be linked using a key field.	
There must be at least three tables in a relational database.	
Primary keys are unnecessary whereas you must have them with flat file databases.	
Relational databases cannot store as much information as flat file databases.	
Referential integrity helps to prevent database users entering inconsistent data.	

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2 Tick the **four** statements referring to the use of the internet and the World Wide Web which are true.

	✓
The internet is fully policed and safe.	
Information on the World Wide Web tends to be up to date.	
The World Wide Web has vast amounts of information.	
All information on the World Wide Web is unbiased.	
All websites are accurate.	
Lack of expertise in using search engines can lead to inefficient searching.	
It is more difficult to plagiarise information using the World Wide Web than copying out of a hard copy book.	
There is a danger of accessing inappropriate websites.	
The internet is smaller than an intranet.	
The World Wide Web and the internet are the same thing.	

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3 Ian wants to apply encryption to all his emails. He is not sure whether to use asymmetric or symmetric encryption.

(a) Describe what is meant by the asymmetric method of encryption.

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(b) Describe what is meant by the symmetric method of encryption.

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4 Helen is the manager of a company which sells cars. She is going to produce a blog about the success of the company. She will use word processing, spreadsheets, databases and other software.

Evaluate the different types of software she will use to produce the blog.

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5 The digital divide can exist between different groups of people.

Describe the groups of people who are affected and explain why this is the case.

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6 Below is part of a spreadsheet Xia has created to model his personal finances.

	A	B
1	2600	Wages/salary
2		
3	1000	Mortgage/rent
4	120	Utilities
5	50	Phone
6	100	Satellite/TV
7	80	Internet
8	550	Groceries
9	100	Clothing
10	150	Eating out
11	75	Hair/beauty
12	30	Pet food
13	40	Cinema
14	160	Car/travel
15	100	Insurance
16		
17	=SUM(A3:A15)	Total outgoings
18	=MAX(A3:A15)	=VLOOKUP(A18,$A$3:$B$15,2,FALSE)
19		
20	=A1-A17	Balance
21		

(a) Identify the value which would appear in cell B18 explaining how you arrived at your answer.

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(b) Xia is not sure whether the spreadsheet would work if some of the values were changed. Describe the test plan you would use to help Xia make sure there are no errors in his spreadsheet.

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7 Fig. 1 below shows a small extract from a school database. All students shown are in year groups 9, 10 or 11 depending on their year of birth. Each student's year group, which is not part of the database, is shown in Fig. 2.

student_ID	student_name	option _1	option_2	year of birth
100132	Marian Griffith	Geography	Art	2001
101648	Manjit Dupay	Sociology	Design Tech	2003
103457	Ho Chan	History	Spanish	2002
104895	Johan Schmidt	Geography	Art	2002
105456	Paul Dugarry	History	German	2001
105645	Li Cho	History	Latin	2002

Fig. 1

Name	year_group
Marian Griffith	11
Manjit Dupay	9
Ho Chan	10
Johan Schmidt	10
Paul Dugarry	11
Li Cho	10

Fig. 2

The **year_group** field needs to be added to the database and will be a calculated field.

(a) Explain how you would set up the calculated **year_group** field.

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(b) You have been asked to produce a well-formatted report showing the year 10 students studying History. The report will contain a list of these students showing only each student's name, identity number and the total number of students involved.

Explain how you would produce such a report.

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8 Many people complain about the number of CCTV cameras there are in public places.

Discuss the benefits and drawbacks of CCTV monitoring in public places such as on streets or inside shops.

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9 Wilhelm has tried importing a word-processed file into his spreadsheet but the software gives the error message 'file format not valid'.

Explain why this has happened and explain what Wilhelm should do to his data to enable him to load it into his spreadsheet.

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10 Describe the characteristics which make spreadsheets suitable for modelling situations.

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11 Ahmed was overheard saying ‘MIS is a piece of software to store data’. Anjan, his colleague, said ‘I am sure it’s a little more complicated than that.’

By describing the features of a management information system (MIS), explain why Anjan was justified in his statement.

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12 Paul and his team of programmers are writing software for a new project for a large company. Every month, Paul and the programmers report to the company directors by means of a video-conference.

Describe how Paul would set up and run this video-conference, assuming that the necessary equipment and software has already been purchased and tested.

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13 When an expert system is used to suggest solutions to problems the inference engine uses a form of reasoning involving forward chaining or backward chaining.

Explain the differences between forward chaining and backward chaining by describing both terms.

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