

Cambridge
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AS & A Level

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INFORMATION TECHNOLOGY

9626/11

Paper 1 Theory

October/November 2019

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.

Calculators are not allowed 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.

- 1 Tick the **four** most accurate statements regarding the benefits of gathering data from direct data sources.

	✓
You only have to gather as much or as little data as you need	
It allows data to be gathered from subjects to which the data gatherer does not have physical access	
You can obtain the data faster than using an indirect data source	
You have full control over the method used to collect the data	
A much larger sample size can be used than is possible with indirect data sources	
A direct data source is quicker to search	
There may be an opportunity to sell the data to other people for them to use	
You do not have to spend time interviewing people or giving out questionnaires	
A CD ROM of historical data is a direct data source	
The source of the data is known exactly, making it easier to judge its reliability	

[4]

- 2 Tick the **four** most accurate statements regarding the gathering of personal data by unauthorised persons.

	✓
Pharming involves sending a website URL, inviting the receiver to go to the website	
Smishing involves using text messages to persuade people to give out personal information	
Phishing involves installing malicious software on the victim's computer	
Pharming involves creating a fake website that looks like an actual bank's website	
Phishing involves the sending of fake emails in order to advertise the bank	
Vishing involves the fraudster's computer redirecting a customer's phone call to his own phone	
Banks can ask you from time to time to send them your full password to check you are authorised to use that account	
Vishing involves receiving a phone call from a fraudster	
Vishing never involves getting the customer to phone the bank	
Smishing is the same as vishing but never involves the use of a phone	

[4]

3 Most computer systems consist of hardware and software.

(a) Define the term 'hardware' in an IT context.

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(b) Giving brief descriptions of **two** examples, define the term utility software.

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4 Using a news website as an example, describe what is meant by dynamic data.

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- 5 When creating queries, a function IIf() is often used. A table containing a list of where people live and their status could exist so that a query could be constructed:

IIf([Living_in]="own home","own","other")

This would look in a list of where people lived for the words 'own home' and would output the word 'own' if a match were found. If it was not 'own home' then the word 'other' is output.

- (a) Complete the nested query that would be used to output 'rented' for anyone living in accommodation owned by a landlord. This is indicated by the word 'landlord' in the *Living_in* field (see table on page 5).

IIf([Living_in]="own home","own"
..... [6]

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

6 John, a user interface designer, has been asked by a systems analyst to design an interface for a proposed information system. He will need to consider a mental model of the potential users of the system.

(a) Describe what is meant by a mental model in this context.

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(b) Describe the features of a user interface which need to be considered when planning its design. Where appropriate, give examples of each feature.

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- 10** Expert systems often use a mixture of forward chaining and backward chaining to determine the probable solution to a problem.

Describe the terms:

- (a)** Forward chaining.

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- (b)** Backward chaining.

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- 11 Here is a spreadsheet showing the medal winners at some of the 2016 Olympics swimming events.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Country code	Country name	Gold	Silver	Bronze		Swimmer	Distance	Stroke	Gender	Position	Code of country	Time (secs)	Average speed (m/s)	Name of country		
2																	
3	AUS	Australia	1	0	1		Kyle Chalmers	100m	Freestyle	M	1	AUS	47.58	2.10	Australia		
4	BEL	Belgium	0	1	0		Pieter Timmers	100m	Freestyle	M	2	BEL	47.80	2.09	Belgium		
5	CAN	Canada	1	1	0		Nathan Adrian	100m	Freestyle	M	3	USA	47.85	2.09	United States		
6	CHN	China	1	0	0		Penny Oleksiak	100m	Freestyle	F	1	CAN	52.70	1.90	Canada		
7	GBR	Great Britain	1	0	0		Simone Manuel	100m	Freestyle	F	2	USA	52.71	1.90	United States		
8	RSA	South Africa	0	2	0		Sarah Sjostrom	100m	Freestyle	F	3	SWE	52.99	1.89	Sweden		
9	SWE	Sweden	1	1	1		Adam Peaty	100m	Breaststroke	M	1	GBR	57.13	1.75	Great Britain		
10	USA	United States	1	1	4		Cameron Van der Burgh	100m	Breaststroke	M	2	RSA	58.69	1.70	South Africa		
11							Codey Miller	100m	Breaststroke	M	3	USA	58.87	1.70	United States		
12							Sarah Sjostrom	100m	Butterfly	F	1	SWE	55.48	1.80	Sweden		
13							Penny Oleksiak	100m	Butterfly	F	2	CAN	56.46	1.77	Canada		
14							Dana Vollmer	100m	Butterfly	F	3	USA	56.63	1.77	United States		
15							Yang Sun	200m	Freestyle	M	1	CHN	104.65	1.91	China		
16							Chad Le Clos	200m	Freestyle	M	2	RSA	105.20	1.90	South Africa		
17							Conor Dwyer	200m	Freestyle	M	3	USA	105.23	1.90	United States		
18							Katie Ledecky	200m	Freestyle	F	1	USA	113.73	1.76	United States		
19							Sarah Sjostrom	200m	Freestyle	F	2	SWE	114.08	1.75	Sweden		
20							Emma McKeon	200m	Freestyle	F	3	AUS	114.92	1.74	Australia		

- (a) Write down the formula which should go in cell D3 to calculate the number of gold medals that Australia won in the events. The formula should be easily replicable to show the number of gold medals won by the other countries.

The formula should work even if the swimmer details are changed.

= [6]

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

- (b) The average speed of each swimmer is calculated by dividing the distance swum by the time taken in seconds.

Write down the formula which should go in cell P3 to calculate Kyle Chalmers' speed. The formula should be easily replicable to show the speeds of the other swimmers.

= [5]

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

- (c) Explain how you would amend the spreadsheet so that the cells between M3 to M20 could only accept the country codes listed. If any other code was input an error message informing the user an error had occurred would be output.

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(d) Explain how you would sort the data so that all the female swimmers were grouped together before the male swimmers and with the furthest distance at the top.

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