Cambridge International AS & A Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

INFORMATION TECHNOLOGY **9626/12**

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.

Cambridge Assessment International Education

[Turn over

1 Tick the **four** most accurate statements regarding gathering data from indirect data sources.

	✓
It may involve having to purchase more data loggers	
Several people would have to be employed to carry out interviews	
It always takes longer to gather data from an indirect data source	
It is impossible to ensure that data was collected from a representative sample	
The data may be out of date	
The sample size is always smaller than if you used a direct data source	
The purpose for which data was collected originally may be quite different from the purpose of the current research	
There may be no data available. The data required has simply never been recorded	
The coding used in the data is never explained	
Compared to direct data sources, using indirect data sources is always very expensive when preparing and carrying out the gathering of data	

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2 Tick the **four** most accurate statements regarding internal hardware components.

	✓
A motherboard has a collection of chips and controllers known as the chipset	
A hard disk drive usually has less storage capacity than the RAM within a computer	
ROM is the memory used to store documents the user is currently working on	
The hard disk drive is used to store application software	
A solid state drive has no moving parts	
RAM is memory that cannot be changed	
A hard disk drive uses flash memory to store data	
RAM stores the start up instructions of a computer even when it is switched off	
A PC can still work without having a CPU	
The arithmetic logic unit and the control unit are part of the CPU in a computer	

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3 A hockey club secretary is planning to computerise the players' records. For this system she is considering using custom written software.

(a) Describe the drawbacks of using custom written software.

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(b) Describe the benefits of using custom written software.

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4 Doctors often use expert systems to help them make a diagnosis.

Without describing its components explain how an expert system helps the doctor come to a decision regarding the diagnosis.

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5 Here is a spreadsheet showing the top European goal scorers in the 2018 Football World Cup qualification matches.

	A	B	C	D	E	F	G	H	I	J	K
1						Code of country	Footballer	Name of country	Games played	Goals scored	Average
2											
3						POL	Robert Lewandowski	Poland	10	16	
4						SWE	Marcus Berg	Sweden	11	16	
5			Country code	Country name		DEN	Christian Eriksen	Denmark	12	16	
6			POL	Poland		POR	Cristiano Ronaldo	Portugal	9	15	
7			SWE	Sweden		GRE	Kostantinos Mitroglou	Greece	10	12	
8			DEN	Denmark		ITA	Ciro Immobile	Italy	12	12	
9			POR	Portugal		BEL	Romelu Lukaku	Belgium	8	11	
10			GRE	Greece		CRO	Mario Mandžukic	Croatia	11	10	
11			ITA	Italy		POR	André Silva	Portugal	10	9	
12			BEL	Belgium		ITA	Andrea Belotti	Italy	9	8	
13			CRO	Croatia		DEN	Thomas Delaney	Denmark	12	8	
14			SWI	Switzerland		SWI	Haris Seferovic	Switzerland	12	8	
15			ROI	Republic of Ireland		ROI	James McClean	Republic of Ireland	11	8	
16			MON	Montenegro		SWE	Emil Forsberg	Sweden	12	8	
17			NED	Netherlands		MON	Stevan Jovetic	Montenegro	8	7	
18						NED	Arjen Robben	Netherlands	7	6	
19						BEL	Eden Hazard	Belgium	8	6	
20						ROI	Daryl Murphy	Republic of Ireland	8	6	
21											

(a) Write down the formula which should go in cell H3 to display the name of the country for Robert Lewandowski. The formula must be easily replicable.

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

(b) Explain, in detail, the steps you would take to amend the spreadsheet so that the players will be put in order of the average number of goals scored per games played for each player. The highest average number should be first in the list.

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6   Many organisations have an intranet and often extend it to form an extranet.

Describe, using examples, what an intranet is and how it could be extended into an extranet.

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7 Sadiq has written a program that he now wishes to convert using a compiler.

(a) There are two types of software. Name them, indicating which type a compiler is.

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(b) Describe the function of a compiler.

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8 Kelvin was given the task of creating a relational database to combine all his company's customer records and sales records (invoices). The tables that were created are shown here.

Customer table

Customer_id	Family_name	First_name	Credit_limit	Loyalty_number
M3764A	Burke	Linda	€1,980	408254117150
N3201B	Charles	Lauren	€2,650	545687952356
N5789A	Floyd	Joe	€1,850	803226234709
L2345A	Hall	John	€2,700	678914325678
Q4012A	Jones	Laura	€3,400	384466646362
L3896C	Li	Kurtis	€2,130	846869163975
M4698B	Norfolk	Kate	€1,250	243375720844
M2589D	Rhodes	Lotte	€3,400	385657814001
M4013B	Sun Wu	Li	€2,240	320031330576
P4352D	Watson	Karla	€2,130	322036694448
P3156C	Williams	Joanne	€1,870	421536345681

Invoices table

Invoice_number	Number_of_items	Item_cost	Customer_ref	Delivered
32178	8	€12.45	P4352D	☑
43189	6	€17.30	N5789A	☑
45237	4	€38.50	M4698B	☐
45964	1	€152.20	L3896C	☑
46579	3	€38.20	N3201B	☐
56931	5	€17.50	M2589D	☑

You can assume that all values shown include the maximum and minimum allowed in each field.

(a) Complete the data dictionary below for the Invoices table. You can assume that all values shown are typical. All field sizes should be appropriate.

Attribute	Data type	Field size	Format	Type of key

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(b) Kelvin wishes to add a calculated field showing the total cost for each customer.

Describe the steps he would need to follow in order to create this calculated field using a query without using a wizard.

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(c) The following data was typed in error. For each item explain how validation could have prevented the error and explain what would be allowed.

(i) 321789 in the Invoice_number field.

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(ii) 12500 in the Credit_limit field.

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(iii) L21789 in the Customer_id field.

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(iv) 679814325678 in the Loyalty_number field for John Hall.

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9 Evaluate the use of HTTPS in websites.

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10 Many organisations make use of Management Information Systems (MIS). Explain what a typical MIS consists of, including the role of an MIS manager.

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11 Juanita, an office manager, has just been given the task of producing customer invoices. Each invoice will need to have three copies. She is trying to decide between using a dot matrix printer or an inkjet printer to produce the invoices.

(a) Give **three** detailed advantages of Juanita choosing a dot matrix printer.

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(b) Give **three** detailed disadvantages of Juanita choosing a dot matrix printer.

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12   Laura, the manager of a new company, has just purchased some computers for workers to use. With the increase in the use of ransomware by hackers she has decided that the workers will not be allowed access to the internet. However, she needs to decide whether or not to connect the computers together to form a network.

Without referring to the internet, discuss the advantages and disadvantages of networking these computers.

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