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Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME

CENTRE NUMBER | | | | | |

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5531208022

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **October/November 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 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 must not be used in 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.

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1 Tick the **four** most accurate statements regarding peer-to-peer and client-server networks.

	✓
Peer-to-peer networks must have a central server.	
Client-server networks generally offer greater security than peer-to-peer networks.	
Peer-to-peer networks can support millions of users with no loss of performance.	
The server will determine which users can access the files on a client-server network.	
In a client-server network each client functions both as a client and as a server simultaneously.	
If one computer crashes it has no effect on the other users in a client-server network.	
A client-server network is cheaper to set up than a peer-to-peer network.	
Peer-to-peer networks always require an employee to manage the network.	
In a peer-to-peer network only one computer is allowed to use the printer.	
In a peer-to-peer network computers can communicate and share files with every other computer on the network.	

[4]

2 Tick the **four** statements which are true regarding user interfaces.

	✓
The colours used in a dialogue interface are of key importance.	
A mouse is an essential input device when using a command line interface.	
A graphical user interface requires you to type in a large number of instructions.	
A command line interface is mainly used by more advanced computer users.	
A gesture based interface allows users to point with their fingers as a method of input.	
A command line interface needs menus and icons to operate it.	
A dialogue interface can interpret hand movements to carry out commands.	
A gesture based interface is very reliable as most users have similar gestures for communicating.	
The font size is the most important feature of a command line interface.	
A graphical user interface involves the use of windows and pointers.	

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3 There are many types of data storage device including hard disk drives, solid state drives, optical drives and magnetic tape drives.

Describe the purpose of these storage devices and how they store data.

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4 The lack of a broadband connection is a symptom of the digital divide.

Explain why different groups of individuals do not have a broadband connection and what can be done to improve this situation.

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5 Many applications use computer models to trial new processes.

Give **four** drawbacks of using a model to create and run simulations.

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6 A head teacher wishes to computerise the marking of student exam papers. She is investigating systems that use optical mark recognition (OMR).

(a) Give **three** advantages of using an OMR system compared to marking papers manually.

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(b) Give **three** disadvantages of using an OMR system compared to marking papers manually.

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7 Describe, in detail, **three** different safety (apart from e-safety) issues that can arise from the use of IT. For each issue give **one** method of helping to prevent it. Each method must be different.

Issue 1 .....

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Prevention .....

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Issue 2 .....

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Prevention .....

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Issue 3 .....

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Prevention .....

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8 Video-conferencing is a commonly used method of communication. It has an effect on different sections of society.

Describe the impact of video-conferencing on the following groups of people.

General public .....

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Medicine – doctors, nurses and patients .....

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Education – teachers and students .....

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9 Schmidt and Partners own a chain of shoe shops. They pay their workers a weekly wage consisting of a basic wage plus commission. Workers only get paid commission if they have made $500 worth of sales in that week.

The commission is paid at the rate of 10% of the amount of sales made over $500.
Below is a spreadsheet showing some of the workers and the wages they were paid in one week.

	A	B	C	D	E	F	G
1	Sales person	Department	Value of sales	Basic wage	Commission		Total wage
2							
3	Li Chung	Childrens	$550	$50	$5		$55
4	Graham Phillips	Adults	$450	$60			$60
5	Karl Gustaph	Childrens	$700	$55	$20		$75
6	Paula Meldrew	Childrens	$850	$60	$35		$95
7	Shen Bin	Adults	$1,000	$55	$50		$105
8	Ram Babu	Childrens	$350	$45			$45
9	Joan Adams	Childrens	$780	$55	$28		$83
10	Hu Zheng	Adults	$620	$65	$12		$77
11	Louis Raphael	Adults	$420	$45			$45
12	Ambrin Satem	Childrens	$900	$50	$40		$90
13	Tong Mu	Adults	$940	$60	$44		$104
14	Malcolm Novak	Adults	$870	$70	$37		$107
15							
16					$131		

Fig. 1

(a) Write down the formula which should go in cell E4 which is easily replicable. It should calculate the commission earned but leave the cell blank if no commission is earned.

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

(b) The shop manager wants to know the total commission the shop is paying to those workers in the Adults department who sold over $800 worth of shoes.

Write down a conditional formula which should go in cell E16.

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

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(c) The manager wishes to know the number of workers who did not earn any commission.

Write down the formula he would enter into cell E18 to obtain this value. The formula must work even if the data in the spreadsheet changes in the future.

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(d) When the manager was originally given the spreadsheet by the IT technician it looked as shown in Fig. 2 below:

	A	B	C	D	E	F	G	H
1	Sales per	Departmer	Value of	Basic Wag	Commission		Total wage	
2								
3	Li Chung	Childrens	550.00	50.00	5.00		55.00	
4	Graham F	Adults	450.00	60.00			60.00	
5	Karl Gust	Childrens	700.00	55.00	20.00		75.00	
6	Paula Me	Childrens	850.00	60.00	35.00		95.00	
7	Shen Bin	Adults	1000.00	55.00	50.00		105.00	
8	Ram Babu	Childrens	350.00	45.00			45.00	
9	Joan Ada	Childrens	780.00	55.00	28.00		83.00	
10	Hu Zheng	Adults	620.00	65.00	12.00		77.00	
11	Louis Rap	Adults	420.00	45.00			45.00	
12	Ambrin Sa	Childrens	900.00	50.00	40.00		90.00	
13	Tong Mu	Adults	940.00	60.00	44.00		104.00	
14	Malcolm M	Adults	870.00	70.00	37.00		107.00	
15								
16					131.00			

Fig. 2

Explain, in detail, the features of spreadsheet software he had to use to change its appearance as shown in Fig. 2 to that shown in Fig. 1 (page 8), using the shortest number of steps. The larger column widths became 20 points wide and the narrower one (column F) 12 points.

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10 Below is a database showing a list of details about cars in a showroom.

Reg_No	Make	Model	Doors	Colour
L456 SRA	BMS	2000	7	Green
B648 MAV	Opla	Valiant	7	Green
M452 DQY	BMS	2000	5	Red
M846 RCA	BMS	3000	5	Blue
L678 RTS	Frod	Vic	5	Red
B358 FCD	Opla	Eagle	5	Green
F692 TEC	Opla	Eagle	5	Red
S492 LZR	Opla	Artsa	5	Black
N671 SAE	Vellox	Lemming	5	Black
R762 VDA	Frod	Leo	4	Blue
F457 REW	Opla	Eagle	4	Blue
K789 KNM	Opla	Artsa	4	Blue
X236 BEC	Opla	Eagle	4	Black
Z341 TYU	Opla	Eagle	4	Green
J456 REA	Vellox	Kestrel	4	Black
L423 FRO	Vellox	Lemming	4	Blue
L567 APQ	Vellox	Kestrel	4	Green

To find all Eagle models the search conditions would be Model = “Eagle”.

(a) Using only Boolean operands, comparison operators and wild cards, write down the most efficient search conditions which would produce lists of:

(i) Reg_Nos beginning with the letter ‘L’.

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(ii) Frod cars which are Blue.

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(iii) Eagles which are Red, Blue or Green.

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(b) Describe how the database has been sorted to produce the one shown.

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(c) Identify, giving reasons, the key field in the database. Give reasons why the other fields are not suitable.

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11 Normalisation is often used when converting a set of data into a meaningful database.

Discuss the advantages and disadvantages of normalisation.

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12 Encoding of data can be thought of as applying a code such as letters, symbols and numbers to data for conversion into a cipher. It can also be thought of as a form of analogue to digital conversion such as used by codec software. At times it is the term applied to the coding of data.

Evaluate the need for encoding data and analyse the different methods that can be used to encode data.

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