

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 a soft pencil for any diagrams, graphs or rough working. Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

No marks will be awarded for using brand names of software packages or hardware.

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.

For Examiner's Use

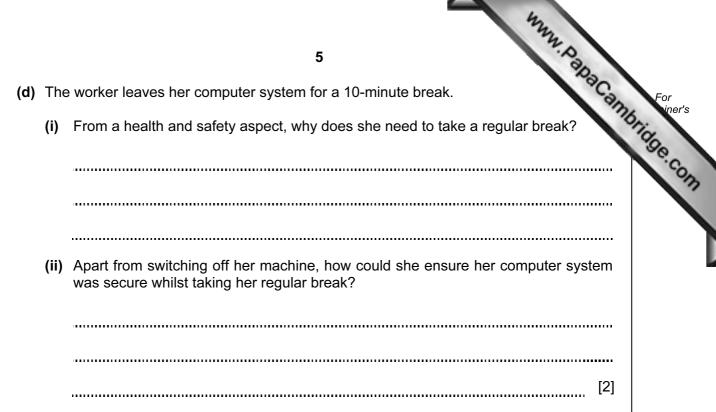
This document consists of 24 printed pages.

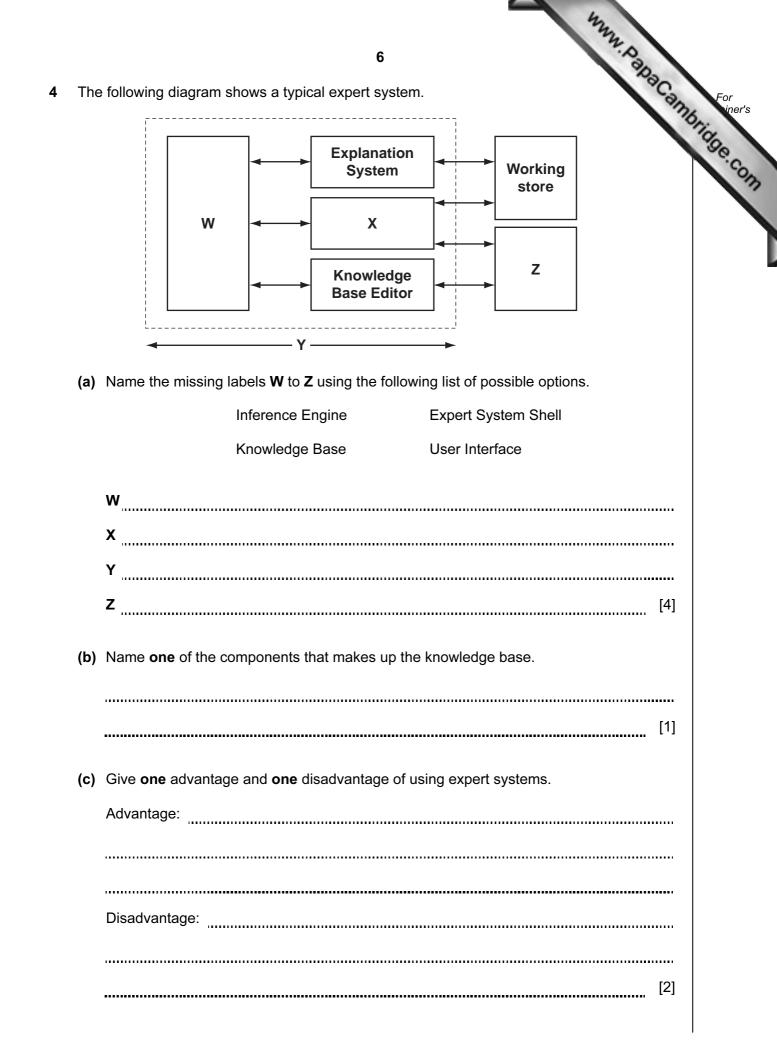


	2 Give three tasks carried out by an operating system.	
1	Give three tasks carried out by an operating system.	°C2
	1	172
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		101
		[3]
2	A user decides to use an Internet search engine to help locate a hotel.	
	(a) What is a search engine?	
		[1]
		נין
	(b) Give two possible problems the user might encounter when using a search engine.	
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		[2]

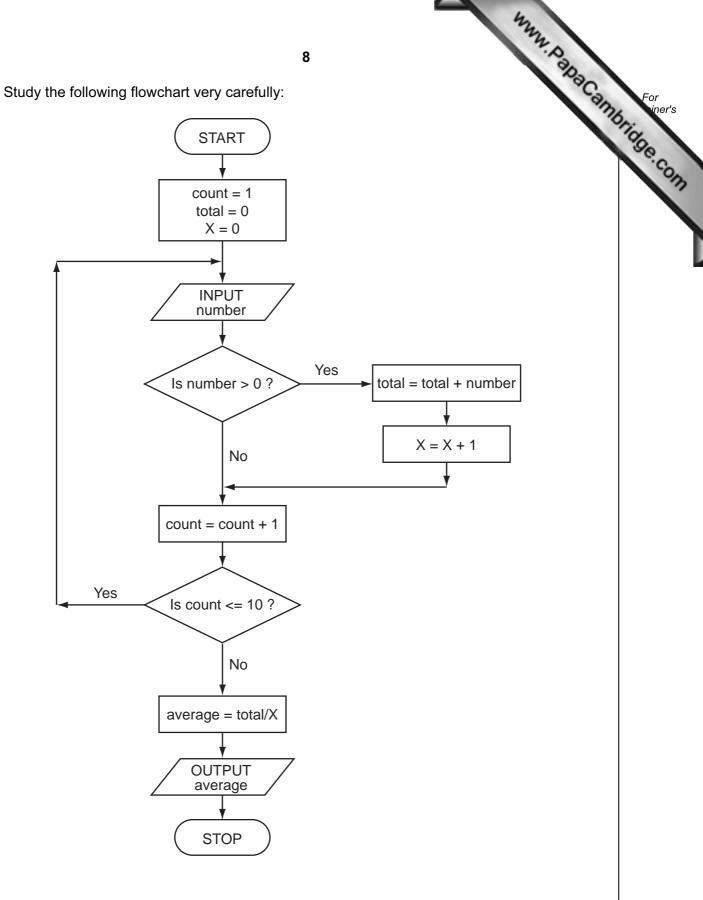
	12	
	3 The search engine found the website of a suitable hotel. Give three features you would expect to see on a hotel website.	
(c)	The search engine found the website of a suitable hotel.	
	Give three features you would expect to see on a hotel website.	rid
	1	30
	2	
	3	
	[3]	

	4 orker at a company has to go through a logon procedure to gain access to her contern. The first thing she has to do is type in a <i>user name</i> and a <i>password</i> . Why is this done?	
	orker at a company has to go through a logon procedure to gain access to her contem.	Call
(a)	The first thing she has to do is type in a user name and a password.	
	Why is this done?	
		•••••
		[1]
(b)	The <i>password</i> is typed in twice.	
	Why is this done?	
		[1]
A m	nenu then appears on her screen. She chooses to connect to the Internet.	
(c)	Describe two ways her computer system is protected against loss or corruption of finance the computer system is connected to the Internet.	les
	1	•••••
	_	
	2	
		[2]





	the second second	
	7	
(d)	Name two examples of the use of expert systems.	For iner's
	1	in the
		o.c.
	2	OT
		[2]



<u>,</u> Г	0, 8	, 0, 21	, -8, -1	2, 1, 2	25		
	count	number	total	Х	average	OUTPUT	
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[1]

Describe the role of computer software and hardware when producing animation en 6 the television and film industry.

www.papacambridge.com [3]

7 A spreadsheet has been set up to compare the costs of types of fruit juice sold by a shop.

	А	В	С	D
1	NAME OF FRUIT	NORMAL PRICE	VOLUME OF	COST PER LITRE
I	JUICE	PER BOTTLE (\$)	BOTTLE (LITRES)	(\$)
2	Apple	3.50	1.0	3.50
3	Orange	2.80	1.0	2.80
4	Pomegranate	4.55	0.7	6.50
5	Caju	2.00	2.0	1.00
6	Mango	1.05	0.7	1.50
7			Average cost:	3.06

(a) (i) What formula is in cell D5 to calculate the cost of Caju juice per litre?

(ii) What formula is in cell D7 to calculate the mean (average) cost of fruit juice per litre?

[2]

(b) What validation check could be carried out on the data in cells B2 to B6?

..... [1] _____

www.papaCambridge.com (c) Three extra columns are to be added to this spreadsheet: Column E will show a percent discount on the normal price of a bottle of fruit (as shown in column B); Column F will show this discount in dollars (\$);

Column G will show the price of a bottle of fruit juice after discount.

Complete the spreadsheet by showing the **formulas** that need to be placed in cells F2 to F6 and G2 to G6.

	E	F	G
1	Percentage discount (%)	Discount amount (\$)	Discounted price per bottle (\$)
2	10		
3	20		
4	15		
5	10		
6	5		

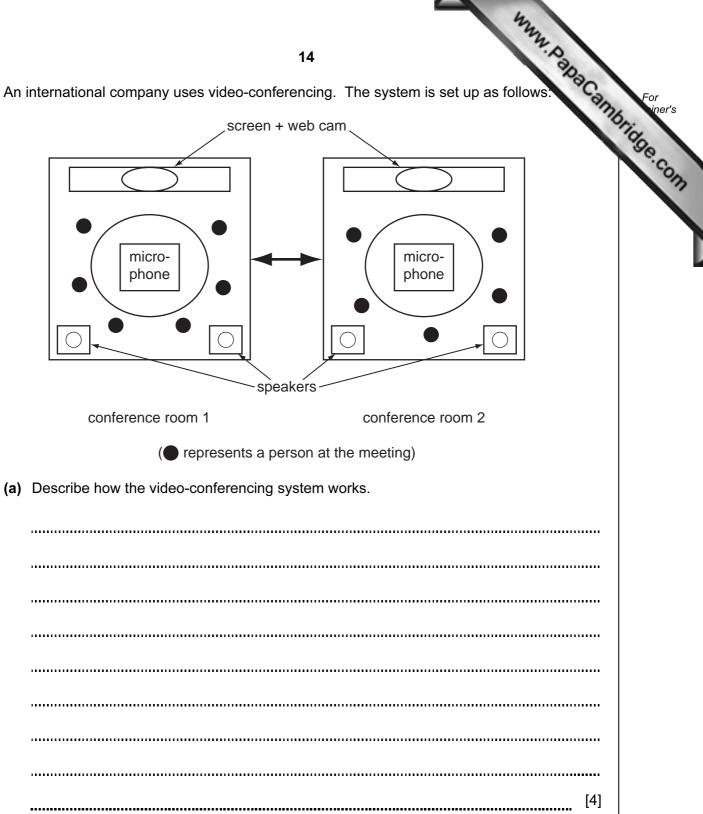
[4]

- Many computer-controlled systems use sensors to gather physical data. For extemperature sensors are used in the control of central heating systems. 8
 - (a) Name three other sensors and give a different application for each named sensor.

42
12
12 ny computer-controlled systems use sensors to gather physical data. For experature sensors are used in the control of central heating systems. Name three other sensors and give a different application for each named sensor. Sensor 1: Application:
Name three other sensors and give a different application for each named sensor.
Sensor 1:
Application:
Sensor 2:
Application:
Sensor 3:
Application:
[6]

444	
13	
Describe how temperature sensors are used in computer-controlled central systems.	For iner's
	CON.
[3]	

An international company uses video-conferencing. The system is set up as follows:



	15 http://www.p	
	15	
(b)	Give two reasons why video-conferencing is gaining in popularity.	For iner's
	1	na
		30
		.co
		17
	2	
	[2]	

www.papacambridge.com 10 (a) Two logic gates are the AND gate and the OR gate. Complete the truth tables for these two gates:

AND gate

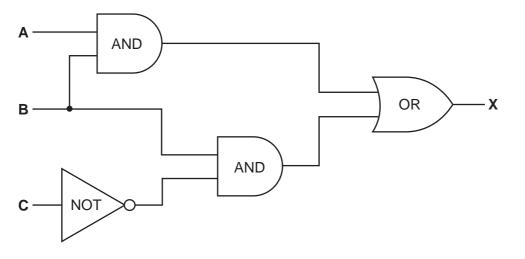
Α	В	Х		
0	0			
0	1			
1	0			
1	1			

Α	В	X
0	0	
0	1	
1	0	
1	1	

OR gate

[2]

(b) Complete the truth table for the following logic circuit:



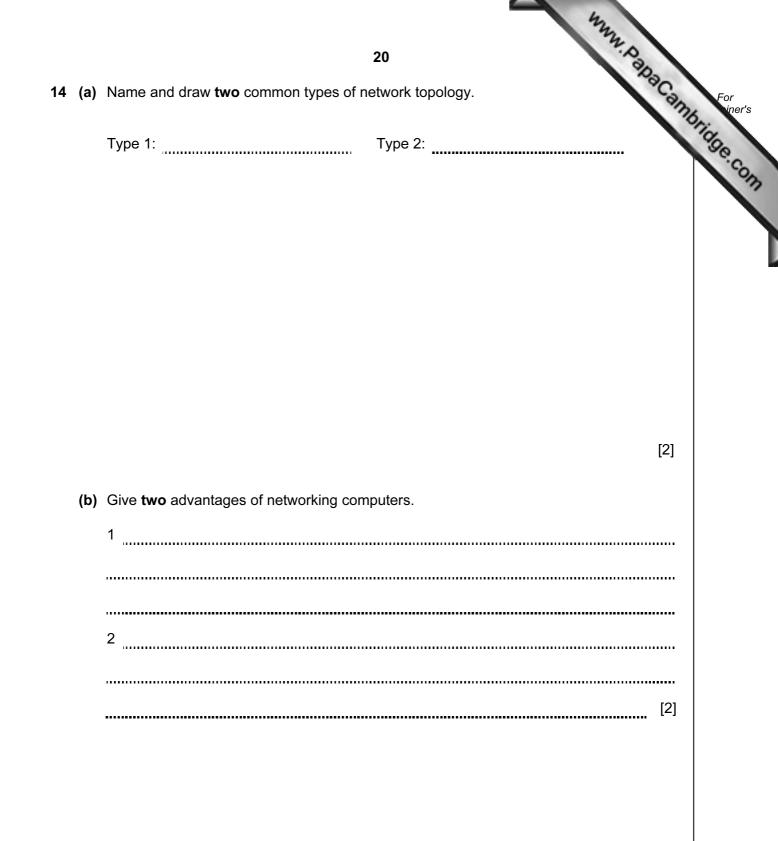
Α	В	С	X
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

[4]

		17 Describe three features you would expect to find in a Computer Aided Design	
		17	
	<i>·</i> · ·		
11	(a)	Describe three features you would expect to find in a Computer Aided Design package.	or iner's
		Puokago.	
		1	0
			.0
		2	
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		٠ 	
		[3]	
	(h)	Cive three different applications where CAD might be used	
	(a)	Give three different applications where CAD might be used.	
		1	
		2	
		2	
		-	
		3	
		[3]	

		12
		18 · · · · · · · · · · · · · · · · · · ·
2	Mar time	18 ny vehicles use Global Positioning Systems (GPS) to know their exact location es. How does GPS work?
	(a)	How does GPS work?
		[3]
	A ta	xi company uses GPS in all its vehicles.
	(b)	One of its taxis is on Main Street and needs to go to Railway Street.
		How is GPS technology used to help the taxi driver get to his new destination?
		[2]
	(c)	Name one other feature of GPS that could be useful to the driver.
		[1]

	19 ¹⁴ . D
I)	19 Give two reasons why the GPS could take the driver to the wrong destination of error messages.
	1
	2
	[2
ha	is been decided to model the traffic flow at a busy road junction.
a)	Describe how data is gathered for this model.
	[(
ว)	Give two reasons why a model is used.
	1
	2
	[2



21A database showing the population of world cities has been produced. A section database is shown below.Ref NoName of CityCountryAreaCity Population (m)Urban Population (m)Capital Population (m)1TokyoJapanAsia33.234.1Yes 22New YorkUSAAmerica17.821.9No						
Ref No	Name of City	Country	Area	City Population (m)	Urban Population (m)	Capital
1	Tokyo	Japan	Asia	33.2	34.1	Yes
2	New York	USA	America	17.8	21.9	No
3	Sao Paulo	Brazil	America	17.7	20.2	No
4	Seoul	S Korea	Asia	17.5	22.3	Yes
5	Mexico City	Mexico	America	17.4	22.7	Yes
6	Osaka	Japan	Asia	16.4	16.8	No
7	Manila	Philippines	Asia	14.8	14.9	Yes
8	Mumbai	India	Asia	14.4	19.7	No
9	Jakarta	Indonesia	Asia	14.3	17.2	Yes
10	Calcutta	India	Asia	12.7	15.6	No

(a) How many records are shown above?

[1]

(b) Using Ref No only, which records would be found if the following search condition was typed in

(Country = "India" OR Area = "America") AND (Capital = "No")

[2]

(c) Write a search condition to find the cities in Asia with a city population greater than 17 million OR an urban population greater than 20 million.

.....

[2]

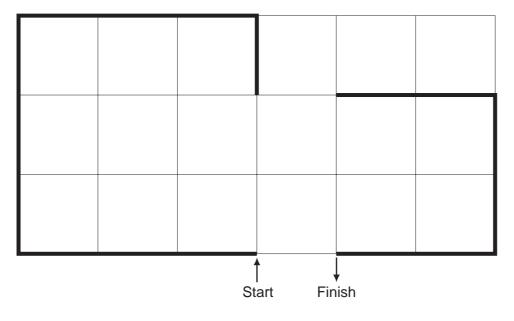
(d) Give one advantage of using Y or N rather than Yes or No in the Capital column.

..... [1]

16 A floor turtle can use the following instructions:

oor turtle can use the follow	22 ing instructions:	MAN, Dana Cambridge. G
Instruction	Meaning	Tigo
FORWARD d	Move d cm forward	.9
BACKWARD d	Move <i>d</i> cm backward	
LEFT t	Turn left <i>t</i> degrees	
RIGHT t	Turn right t degrees	
REPEAT n	Repeat the next set of instructions <i>n</i> times	
ENDREPEAT	End of REPEAT loop	
PENUP	Raise the pen	
PENDOWN	Lower the pen	

(Each square in the drawing below is 10 cm by 10 cm.)



www.papacambridge.com Complete the set of instructions to draw the above shape (shown in bold lines).

PENDOWN

LEFT 90

REPEAT

.....

.....

.....

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.....

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[5]

- 24
- www.papacambridge.com 17 Daniel lives in Italy and travels to Mexico, India and New Zealand. The times diffe are:

<u>Country</u>	<u>Hours</u>	<u>Minutes</u>
Mexico	-7	0
India	+4	+30
New Zealand	+11	0

Thus, if it is 10:15 in Italy it will be 14:45 in India.

(a) Write an algorithm, using pseudocode or otherwise, which:

- Inputs the name of the country
- Inputs the time in Italy in hours (H) and minutes (M)
- Calculates the time in the country input using the data from the table
- Outputs the country and the time in hours and minutes

..... [4]

(b) Describe, with examples, two sets of test data you would use to test your algorithm.

1 _____ 2 [2]

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