

Types and components of computer systems – 2021/20 IGCSE 0417**1. Nov/2021/Paper_11/No.1**

A computer consists of both hardware and software.

(a) Define the term hardware.

.....
..... [1]

(b) Give **two** examples of internal hardware devices.

1
2 [2]

(c) Define the term software.

.....
..... [1]

(d) There are two types of software: system and applications.

Give **two** examples of applications software.

1
.....
2
..... [2]

2. Nov/2021/Paper_11/No.3

Describe **two** advantages of using a tablet computer rather than a laptop computer.

- 1
-
- 2
-
- [2]

3. Nov/2021/Paper_12/No.1

A computer consists of both hardware and software.

(a) Give **two** examples of input devices which are part of a laptop computer.

- 1
- 2
- [2]

(b) There are two types of software: system and applications.

Give **two** examples of system software.

- 1
-
- 2
-
- [2]

4. Nov/2021/Paper_12/No.3

(a) Describe **two** disadvantages of using a tablet computer rather than a laptop computer.

- 1
-
- 2
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- [2]

(b) Modern computers often do not have an optical drive.

State **two** ways music can be transferred onto a computer that does not contain an optical drive.

1

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2

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[2]

5. Mar/2021/Paper_12/No.1

Tick (✓) whether the following are examples of internal or external hardware devices.

	internal (✓)	external (✓)
Mouse		
Video card		
Printer		
Actuator		

[2]

6. June/2021/Paper_11/No.3

Describe **four** characteristics of a tablet computer.

- 1.....
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- 2.....
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- 3.....
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- 4.....
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[4]

7. June/2021/Paper_12/No.2b

(b) One of the uses of a smartphone is the sending and receiving of emails.

Describe **four** other uses of a smartphone.

- 1.....
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- 2.....
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- 3.....
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- 4.....
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[4]

10. Nov/2020/Paper_13/No.1

A desktop computer consists of both hardware and software. The software is either applications software or system software.

(a) Tick (✓) whether the following are examples of **applications** software or **system** software.

	applications (✓)	system (✓)
Measurement software		
Linker		
Database		
Utility software		

[2]

(b) Identify **two** internal items of hardware that could be found in a desktop computer.

- 1
-
- 2
-

[2]

11. Mar/2020/Paper_12/No.4

Smart technology is increasingly being used in everyday life. Many people are now using smart devices such as smartwatches.

- (a) Tick (✓) whether the following statements most appropriately refer to a **desktop computer**, a **tablet computer** or a **smartwatch**.

	desktop computer (✓)	tablet computer (✓)	smartwatch (✓)
A computer made up of separate units			
Is an example of wearable technology			
A portable device that allows text to be typed relatively easily			
Most easily used for fitness and health monitoring by runners			

[4]

- (b) Smartphones are more likely to be used than laptop computers for everyday ICT use.

Describe **three** advantages of using a smartphone rather than a laptop computer.

- 1.....
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- 2.....
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- 3.....
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[3]

12. June/2020/Paper_11/No.1

A computer consists of both hardware and software.

(a) Define the term software.

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[2]

(b) There are two types of software.

Identify the types.

1.....

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2.....

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[2]

13. June/2020/Paper_11/No.2

Tick (✓) whether the following statements refer to a Command Line Interface (CLI) or a Graphical User Interface (GUI).

	CLI (✓)	GUI (✓)
The user has to type in every instruction		
The user does not need to learn any of the instructions		
Each instruction has to be typed in correctly		
The user is in direct communication with the computer		

[2]

14. June/2020/Paper_11/No.3

Every computer contains input and output devices and a central processing unit (CPU).

(a) Describe the CPU including its role.

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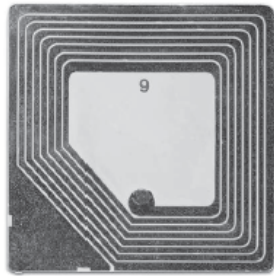
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[4]

(b) Data can be read directly by using a number of different devices.

Name the most appropriate device used to read the following data.



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Cheque No.	Branch Code	Account No.	Transaction Code
05482	55448	654478	25447

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[4]

15. **June/2020/Paper_11/No.7**

The headteacher of a school has decided to replace desktop computers with laptop computers.

Describe the advantages and disadvantages of using a laptop computer rather than a desktop computer.

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[4]

16. June/2020/Paper_12/No.2

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Tawarsoft [Version 12.1.2/213.162]
(c) 2020 Tawarsoft Ltd. All rights reserved.

C:\users\Test >_
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(a) Write down the type of interface shown.

..... [1]

(b) Write down **two** disadvantages of using this type of interface.

1.....

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2.....

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[2]

17. June/2020/Paper_12/No.8

Tablet computers tend to be used more than desktop computers.

Describe the advantages and disadvantages of using a tablet computer rather than a desktop computer.

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[6]

18. June/2020/Paper_12/No.10

Music scores can now be produced using computer systems and appropriate software.

Describe the features of this technology.

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[4]

19. June/2020/Paper_13/No.1

There are two types of software: applications and system.

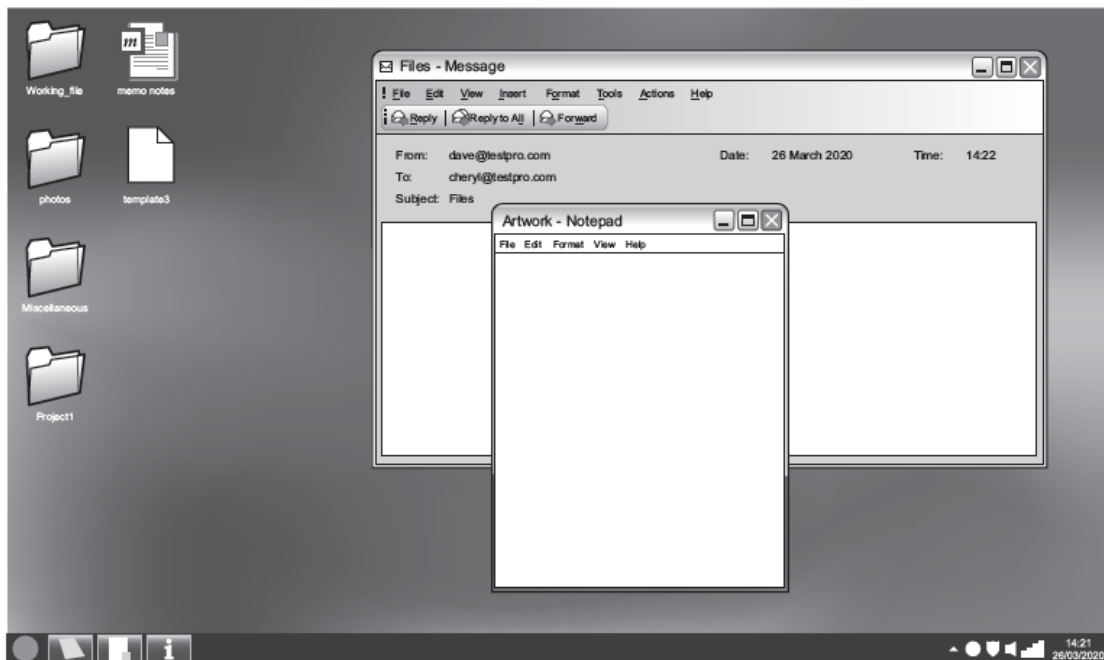
Tick (✓) the most appropriate type of software for each of the following.

	Applications (✓)	System (✓)
Device driver		
Linker		
Photo-editing software		
Spreadsheet		

[2]

20. June/2020/Paper_13/No.2

(a) Write down the type of interface shown.



[1]

(b) Write down **two** advantages of using this type of interface.

- 1.....
- 2.....

[2]

21. June/2020/Paper_13/No.5

The use of laptop computers and tablet computers by people on the move is becoming very popular.

Describe **four** advantages of using a tablet computer rather than a laptop computer.

1

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2

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3

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[4]

3. June/2021/Paper_11/No.9

A company operates from 08:00 to 19:00, Monday to Friday. Full-time employees work a 40-hour week, starting at 09:00 and finishing work at 17:00.

For each of the times worked by an employee, write down the most appropriate working pattern.

- (a)** An employee works from 09:00 to 13:00, Monday to Friday.

..... [1]

- (b)** An employee works from 09:00 to 19:00, Monday to Thursday.

..... [1]

- (c)** The work of two employees combined is a 40-hour week; each work for two full days and a half day.

..... [1]

- (d)** An employee works a full 8-hour day but has negotiated with his employer to complete this at some point between 08:00 and 19:00, each day.

..... [1]

4. June/2021/Paper_12/No.10

Describe the advantages, to both the company and employees, of changing work patterns due to the introduction of computers.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

[6]

5. June/2021/Paper_13/No.2

Circle **two** jobs where there has been an increase in employment as a direct result of the introduction of computers.

- | | | | |
|------------------------|----------------|------------------------------------|-------------------|
| Car production workers | Cleaning staff | Delivery drivers for retail stores | Medical staff |
| Payroll workers | Secretaries | Teachers | Website designers |

[2]

6. June/2021/Paper_13/No.15

Streaming movies and music is replacing downloading or purchasing a physical copy of the files.

Describe the advantages and disadvantages of streaming files rather than using other methods.

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[4]

7. Nov/2020/Paper_13/No.10

The use of ICT in organisations has changed the way in which employees work.

(a) Describe, giving an example, what is meant by compressed hours.

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..... [3]

(b) Describe, giving an example, what is meant by flexible working.

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..... [3]

8. June/2020/Paper_13/No.10

The modern home relies heavily on microprocessor-controlled devices. One of the benefits is that a worker is able to return home to a warm house having set the heater control to switch on at a certain time.

- (a) Describe **four** benefits in terms of lifestyle changes that this has produced for the users of such devices.

1.....

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2.....

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3.....

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[4]

(b) The worker has set the heater control to switch on at 16:00 for two hours.

Explain how the microprocessor can operate the automatic heater to turn on and off at the correct times.

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[6]

Spreadsheets – 2021/20 IGCSE 0417

1. Nov/2021/Paper_11/No.10

(a) Explain the differences between a VLOOKUP function and a LOOKUP function.

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..... [3]

(b) A spreadsheet contains a list of staff and the rooms they work in at a school.

	A	B	C	D	E
1	Room	Department	Name		
2	29	Languages	Aaron Garcia	31	=VLOOKUP(D2,A2:C7,3)
3	30	History	Julieta Diaz		
4	28	Chemistry	Ernesto Fernandez		
5	26	Biology	Salvador Calbo		
6	31	ICT	David James		
7	49	Mathematics	Adriene Martinez		

(i) Explain, in detail, what the formula in cell E2 does.

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..... [3]

(ii) When certain room numbers are typed into cell D2 unexpected results appear in cell E2. Suggest improvements that could be made to ensure the correct result is displayed.

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..... [2]

A teacher in the school has created a spreadsheet to display whether a student has good timekeeping when arriving at lessons. He has produced a formula but thinks it could be improved. The formula is:

=IF(B4>=A\$18,B\$18,IF(B4>=A\$17,B\$17,IF(B4>=A\$16,B\$16,IF(B4>=A\$15,B\$15,IF(B4>=A\$14,B\$14,"")))))

	A	B	C
1			
2	Name of Student		
3	Half term	Lates	
4	1	17	=IF(B4>=A\$18,B\$18,IF(B4>=A\$17,B\$17,IF(B4>=A\$16,B\$16,IF(B4>=A\$15,B\$15,IF(B4>=A\$14,B\$14,"")))))
5	2	20	
6	3	1	
7	4	12	
8	5	18	
9	6	0	
10			
11			
12			
13			
14	0	Excellent	
15	1	Very Good	
16	5	Good	
17	15	Poor	
18	25	Very Poor	

(c) Write down the value that should appear in cell C4.

..... [1]

(d) The teacher has improved the formula and has typed in =VLOOKUP(B4,A\$14:B\$18,2)

Explain the advantages of using this formula compared to the original one.

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..... [4]

2. Nov/2021/Paper_12/No.10a,b

A school is planning to change the way it reports back to parents about their child's academic progress. They plan to produce a mail merged document and then email this to parents.

They have created a spreadsheet which shows the pupil's name, target, attainment and effort levels for Maths and the Science subjects.

Part of the spreadsheet is shown.

	A	B	C	D	E	F	G	H	I	J	K
1	Name		Target level	Maths		Biology		Chemistry		Physics	
2				<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>
3	Ahmal	Wulandan	6	7	2	6	2	8	1	7	2
4	Nurul	Prakoso	8	7	3	7	3	9	1	7	2

- (a) Design a suitable document layout to display the information of one pupil. The name of the pupil must be clearly shown separated from the rest of the data. It must have appropriate spacing. Do **not** include the pupil's data.

[6]

- (b) The attainment levels range from 1 to 9 and the effort levels range from 1 to 3. Before teachers are allowed to enter data, the spreadsheet needs to be tested.

Write down **one** example of extreme data to test the attainment field and **one** example of abnormal data to test the effort field.

Attainment – extreme data

Effort – abnormal data

[2]

(c) Describe **four** advantages of using a mail merge for this document.

- 1
.....
 - 2
.....
 - 3
.....
 - 4
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- [4]

(d) When the mail merge is created, a special field containing the date needs to be added. This date will change automatically each time the merged document is sent or printed.

Explain how the date field can be added.

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.....
- [3]

	A	B	C	D	E	F	G	H	I	
1	Blood pressure readings					Blood pressure warnings				
2	Date	Sys	Dia	Warning		Sys	Dia	Warning		
3	10-Feb	134	74	Normal		60	40	Low		
4	11-Feb	137	67	Normal		120	80	Normal		
5	12-Feb	145	81	Mild		140	90	Mild		
6	13-Feb	150	86	Mild		160	100	Moderate		
7	14-Feb	180	74	Severe		180	110	Severe		
8	15-Feb	134	75	Normal						
9	16-Feb	130	57	Normal						

- [5]

The doctor has set up a named range called Bloodpressure for the cells F3 to H7.

(b) Explain why the doctor has used a named range.

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..... [3]

The formula =VLOOKUP(B3,Bloodpressure,3) has been entered into cell D3.

(c) Explain what the formula does.

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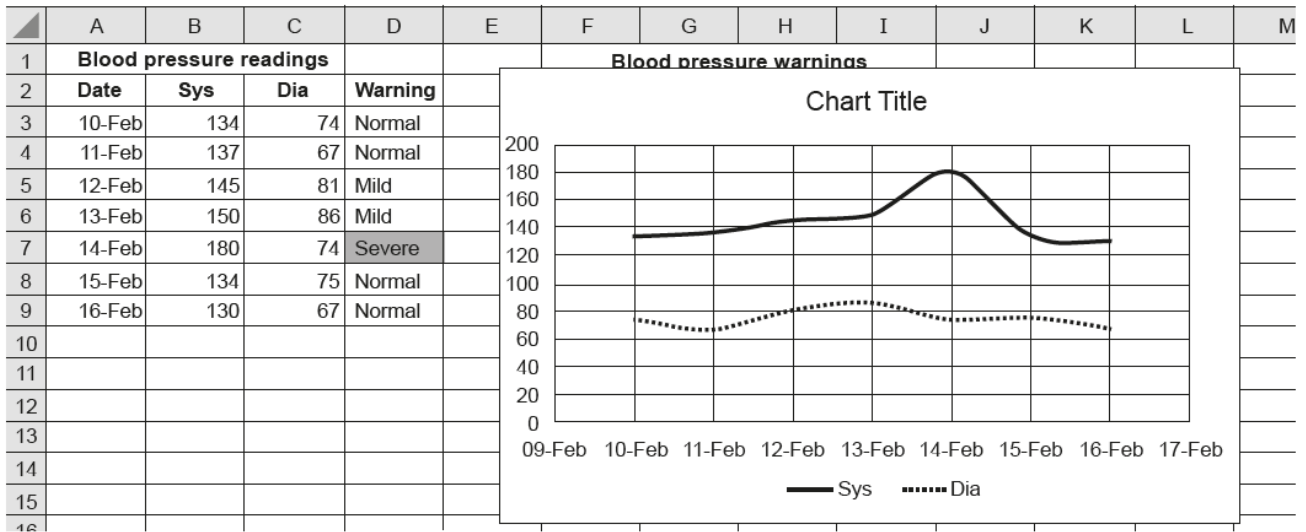
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..... [4]

The doctor has created a graph of the readings for one patient and has displayed it on the spreadsheet. However, there are elements missing.



- (d) Explain how the doctor created the graph. Write in your answer **one** improvement that could be made to the graph.

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..... [3]

- (e) At the end of the month the doctor needs to produce a hard copy document showing information about a patient: their name, date of birth and patient number, as well as data and the graph from the spreadsheet.

Design a suitable document layout. The document must have appropriate spacing.



[5]

4. Mar/2021/Paper_12/No.8

A computer system is being created to calculate the scores in a diving competition. Every dive by an athlete is awarded a score out of 10 by each judge.

The system is being tested using live data. An athlete completes his dive with a difficulty of 3.4 and achieves the following scores, which are displayed in a spreadsheet.

	A	B	C	D	E
1	Athlete:	Shivani Nehwal	Difficulty:	3.4	
2					
3		Score			
4	Judge 1	4.1			
5	Judge 2	6.3			
6	Judge 3	6.2			
7	Judge 4	5.3			
8	Judge 5	7.3			
9	Judge 6	6.1			
10	Judge 7	7.0			
11					
12	Overall Score				

- (a) Before the overall score is calculated the judges' scores need to be sorted into ascending order.

Describe the steps that would be carried out to sort the data into ascending order.

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[3]

- (b) Cell B12 contains the formula, $\text{ROUND}((\text{SUM}(B5:B9)*D1),1)$.

Explain what the formula in cell B12 does.

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[3]

- (c) The judges' score column will be tested using normal, abnormal and extreme data.

Explain, giving examples of test data which would be used, what is meant by:

Abnormal test data.....

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Extreme test data.....

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[4]

5. June/2021/Paper_11/No.5

Tawara school has a shop that sells items needed by pupils in school. Part of a spreadsheet with details of the items is shown.

	A	B	C	D	E	F	G	H	I
1			Tawara School Shop					Tax rate	20%
2	Item		Cost Price	Selling Price	Profit	Tax	Amount sold	Total profit per item	Total tax per item
3									
4	School tie		\$7.00	\$9.99	\$2.99	Y	139	£415.61	\$277.72
5	School scarf		\$10.00	\$15.00	\$5.00	Y	50	\$250.00	\$150.00
6	School blazer		\$20.00	\$25.00	\$5.00	Y	180	\$900.00	\$900.00
7	Pen set		\$10.00	\$12.50	\$2.50	N	100	\$250.00	

(a) Write down the number of rows that are shown in the spreadsheet that contain text.

..... [1]

(b) Write down the number of columns that are shown in the spreadsheet that contain text.

..... [1]

- (c) Tax is paid on certain items sold in the shop. The tax rate that has to be paid is 20% of the selling price. If tax is to be paid on an item, then 'Y' is placed underneath the Tax heading.

The formula in I4 is: IF(F4="Y",(\$I\$1*D4*G4),"")

Explain, in detail, what the formula does.

This image shows a blank sheet of white paper with ten horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.

[5]

- (d)** Explain the steps that need to be taken to display cell H4 as US dollars.

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[2]

6. June/2021/Paper_13/No.8

Many teachers feel that monitoring student progress is an important part of the teaching and learning process.

Describe how the features of a spreadsheet can be used by a teacher to help monitor student progress.

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[6]

7. Nov/2020/Paper_11/No.10c

The student has transferred the data into a spreadsheet in order to create a graph.

	A	B	C	D	E	F	G
1	World Earthquakes - 2019						
2	Country	Magnitude	Depth(km)				
3	Vanuatu	6.9	26			Vanuatu	5
4	Vanuatu	6.7	24			Indonesia	1
5	Indonesia	6.1	29			Nepal	1
6	Vanuatu	6.7	27.6			Myanmar	1
7	Nepal	4.1	10.2			Japan	3
8	Myanmar	6.9	136			Ecuador	3
9	Japan	6.2	9			South Georgia	1
10	Japan	6	8			Mexico	2
11	Vanuatu	6.4	16				
12	Japan	7	10				
13	Ecuador	7.8	20.6				
14	South Georgia	6.2	14				
15	Ecuador	6.2	14				
16	Ecuador	6	10				
17	Mexico	6	16				
18	Mexico	6	10				
19	Vanuatu	7	24				

(c) (i) She has entered a formula in cell G3. The formula is

COUNTIF(A\$3:A\$19,F3)

Explain in detail what the formula in G3 does. Include in your answer an explanation of the use of the \$ sign.

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..... [4]

- (ii) The student is creating an appropriate chart/graph of the data in cells F3 to G10.

Write down the steps she needs to take to produce a chart/graph of the data on the same sheet. Your answer must include examples of an appropriate title and labels.

[6]

8. Nov/2020/Paper_12/No.6

Khalid keeps a spreadsheet to record his expenses and to plan for future spending. This spreadsheet is split into two separate sheets, which he has named Plan and Model.

Plan contains details of his future spending.

Model contains a model of his income and expenses.

Plan

	A	B	C	D
1	<i>Income Statement</i>		% of spending	% of income
2	Income	63,784		
3				
4	Expenditure items			
5	Taxes	12,757	22.22%	20%
6	Housing	19,135	33.33%	30%
7	Food	6,378	11.11%	10%
8	Transportation	9,568	16.67%	15%
9	Entertainment/Other	6,378	11.11%	10%
10	Healthcare	3,189	5.56%	5%
11				
12	Investment return	4%		
13	Income Growth	2.5%		
14	Expense Ratio %	90%		

Model

	A	B	C	D	E	F	G
1	Model						
2		2020	2021	2022	2023	2024	2025
3							
4	Income	63,784	65,379	67,013	68,688	70,406	72,166
5	Investment Income		255	527	816	1,123	1,450
6	Total Income	63,784	65,634	67,540	69,504	71,529	73,616
7							
8	Taxes	12,757	13,076	13,403	13,738	14,081	14,433
9	Housing	19,135	19,614	20,104	20,607	21,122	21,650
10	Food	6,378	6,538	6,701	6,869	7,041	7,217
11	Transportation	9,568	9,807	10,052	10,303	10,561	10,825
12	Entertainment/Other	6,378	6,538	6,701	6,869	7,041	7,217
13	Healthcare	3,189	3,269	3,351	3,434	3,520	3,608
14	Total Expenses	57,405	58,842	60,312	61,820	63,366	64,950
15							
16	Net Income (Savings)	6,379	6,792	7,228	7,684	8,163	8,666
17							
18							
19	Balance Sheet						
20	Savings	6,379	13,171	20,399	28,083	36,246	44,912
21	Can I afford a car?	N	N	N	N	Y	Y
22							

- (a) Khalid has entered a formula in cell C4 of the Model sheet. The formula is $B4+(B4*Plan!\$B13)$

Explain, in detail, what the formula does. Include in your answer an explanation of why the \$ and the ! are used in the formula.

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..... [5]

- (b) He is saving up to buy a new car; this will cost at least \$35,000.

Khalid has entered a formula in cell B21 of the Model sheet. The formula is $IF(B20>35000,"Y","N")$

Explain, in detail, what the formula does.

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..... [3]

Plan

	A	B	C	D
1	<i>Income Statement</i>		% of spending	% of income
2	Income	63,784		
3				
4	Expenditure items			
5	Taxes	12,757	22.22%	20%
6	Housing	19,135	33.33%	30%
7	Food	6,378	11.11%	10%
8	Transportation	9,568	16.67%	15%
9	Entertainment/Other	6,378	11.11%	10%
10	Healthcare	3,189	5.56%	5%
11				
12	Investment return	4%		
13	Income Growth	2.5%		
14	Expense Ratio %	90%		
15				

- (c) Khalid is planning to create an appropriate graph/chart to be placed in a new sheet. The graph/chart will display the % of income and the names of the expenditure items from the Plan sheet.

Identify the most appropriate graph/chart he could use and describe the steps he needs to take to produce this graph/chart in a new sheet.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

9. Nov/2020/Paper_13/No.8

A spreadsheet has been produced showing the final places in one of the events in the 2018 Winter Olympic Games.

	A	B	C	D	E	F	G	H	I	J
1										
2	Country	Name	Heat1	Heat2	Heat3	Heat4	Total Time	Min	Seconds	
3	KOR	Yun Sungbin	50.28	50.07	50.18	50.02	200.6	3	20.55	20.6
4	LAT	Martins Dukurs	50.85	50.38	50.32	50.76	202.3	3	22.31	22.3
5	GBR	Dom Parsons	50.85	51.41	49.33	50.62	202.2	3	22.21	22.2
6	OAR	Nikita Tregubov	50.59	50.50	50.50	50.59	202.2	3	22.18	22.2
7	LAT	Tomass Dukurs	50.88	50.58	50.65	50.63	202.7	3	22.74	22.7
8	KOR	Kim Jisoo	50.80	50.86	50.51	50.81	203.0	3	22.98	23.0
9	GER	Axel Jungk	50.77	51.01	50.83	50.99	203.6	3	23.60	23.6
10										

The event consists of four heats. The times taken to complete each heat are added together to give the Total Time, in seconds. This is then displayed as minutes and seconds.

Two formulae form this calculation; they are stored in column H and column J.

The formula in cell H3 is: =INT(G3/60)

(a) Explain what the formula in cell H3 does.

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..... [2]

The formula in cell J3 is: =ROUND(I3,1)

(b) Explain what the formula in cell J3 does.

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..... [2]

At the end of the competition, the table must be sorted into ascending order of Total Time. The top athlete would be in the gold medal position, the second in silver medal position and the third in bronze medal position. The Medal and Rank columns must be added.

This display should look like this:

	A	B	C	D	E	F	G	H	I
1									
2	Medal	Rank	Country	Name	Heat1	Heat2	Heat3	Heat4	Total Time
3	Gold	1	KOR	Yun Sungbin	50.28	50.07	50.18	50.02	200.55
4	Silver	2	OAR	Nikita Tregubov	50.59	50.50	50.50	50.59	202.18
5	Bronze	3	GBR	Dom Parsons	50.85	51.41	49.33	50.62	202.21
6		4	LAT	Martins Dukurs	50.85	50.38	50.32	50.76	202.31
7		5	LAT	Tomass Dukurs	50.88	50.58	50.65	50.63	202.74
8		6	KOR	Kim Jisoo	50.80	50.86	50.51	50.81	202.98
9		7	GER	Axel Jungk	50.77	51.01	50.83	50.99	203.60
10									

- (c) Explain the steps that must be taken to amend the spreadsheet and to display the data in this way.

[6]

The heat times are measured by a computer system, but could be measured by officials with stopwatches.

- (d)** Discuss the advantages and disadvantages of using computers in measurement rather than humans.

[6]

10. Mar/2020/Paper_12/No.5

A school examinations officer has set up a spreadsheet of candidates for the IGCSE examinations.

Part of the spreadsheet is shown:

	A	B	C	D	E	F
1	Subject examination entries					
2	0417	0486	0500	0580	Subject code	Subject name
3	ICT	English Lit	English	Mathematics	0417	ICT
4	E	E	E	E	0486	English Lit
5		E		E	0500	English
6		E		E	0580	Mathematics
7	E	E		E		
8	E	E	E	E	Number of candidates	
9		E		E	0417	8
10	E	E		E	0486	12
11	E	E		E	0500	5
12	E	E	E	E	0580	12
13		E		E		
14	E	E	E	E		
15	E	E	E	E		

The formula in cell A3 is IF(A2<>"",VLOOKUP(A2,E3:F6,2),"")

(a) Explain what the formula in cell A3 does.

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[5]

(b) The examinations officer is planning to change the range E3 to F6 in the formula to a named range.

(i) Explain why he should do this rather than using the cell references.

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[3]

(ii) Give an example of an appropriate name he should give the range.

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[1]

(c) A formula has been placed in cell F9. The formula is COUNTIF(A4:A15,"E")

Explain what the formula in cell F9 does.

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[2]

11. June/2020/Paper_12/No.4b

A teacher is creating a spreadsheet that will record the grades students achieved in recent tests and compare the average grades of these tests with the students' forecast grades. The grading the teacher is using awards 1 for the highest grade down to 10 for the lowest. The teacher has created a validation rule on the grade entered.

- (a) Give examples of data used to test the validation rule. Your answers for abnormal test data must be for a different reason in each case.

Type of test data	Example of test data
Normal	
Abnormal	
Abnormal	
Extreme	

[4]

- (b)** Part of the spreadsheet is shown, column G subtracts the Forecast grade from the Average grade.

	A	B	C	D	E	F	G
1	Grades obtained in:						
2	Student name	Exam 1	Exam 2	Exam 3	Average grade	Forecast grade	Difference
3	Velia Grimaldi	5	7	8	7	6	1
4	Giuseppe Campo	4	5	3	4	4	0
5	Nicola Donati	2	3	3	3	3	0
6	Giovanni Agnelli	1	3	2	2	5	-3

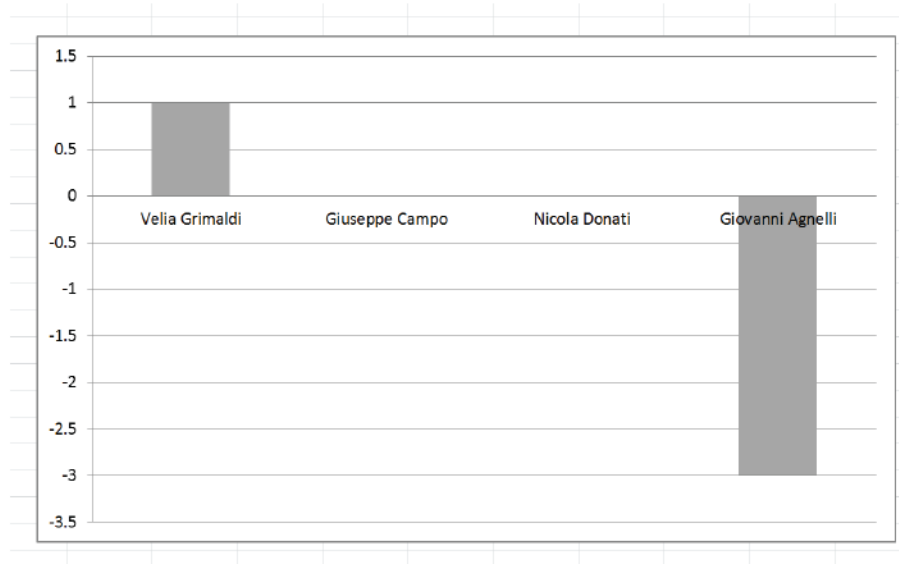
- (i) Describe the steps the teacher can take to edit the spreadsheet to prevent new data being typed into the Forecast grade column.

[illegible]

- (ii) The teacher has typed a formula in cell E3. The formula is `ROUNDUP(AVERAGE(B3:D3),0)`. Explain, in detail, what the formula does.

[illegible]

- (c) The teacher has produced a graph showing the differences between the forecast grade and the average grade for each student. The graph looks like this.



Describe the steps taken to create the graph. Include in your answer **three** improvements that could be made to the graph.

Method.....

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Improvement 1.....

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Improvement 2.....

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Improvement 3.....

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[6]

12. June/2020/Paper_13/No.6c,d,e

The secretary of the Tawara Rowing Club is organising a presentation evening for its members. A systems analyst is creating a database for the club to store the details of the members. She is also creating a spreadsheet to show who is attending the presentation evening.

The systems analyst has set up the following fields for the database.

Name_of_person	Date_of_birth	Membership_type	Contact_email	Contact_phone_no	Year_joined	Gender
Nor Kwa	2/4/2005	Social	n.kwa@rockict.com	03 2453 5673	2018	F
Adam Mazian	23/5/2003	Social	AdamM@abc.co.my	082 25 4689	2016	M
Ahmed Othman	12/03/2006	Junior	AOthman@cie.org	01223 432678	2018	M
Zara Png	1/12/1997	Senior	Zara@cbc.cn	123 3267 9999	2010	F

- (a) For the following fields write down the most appropriate data type. Each data type must be different. For any numeric field, specify the type of number.

Gender.....

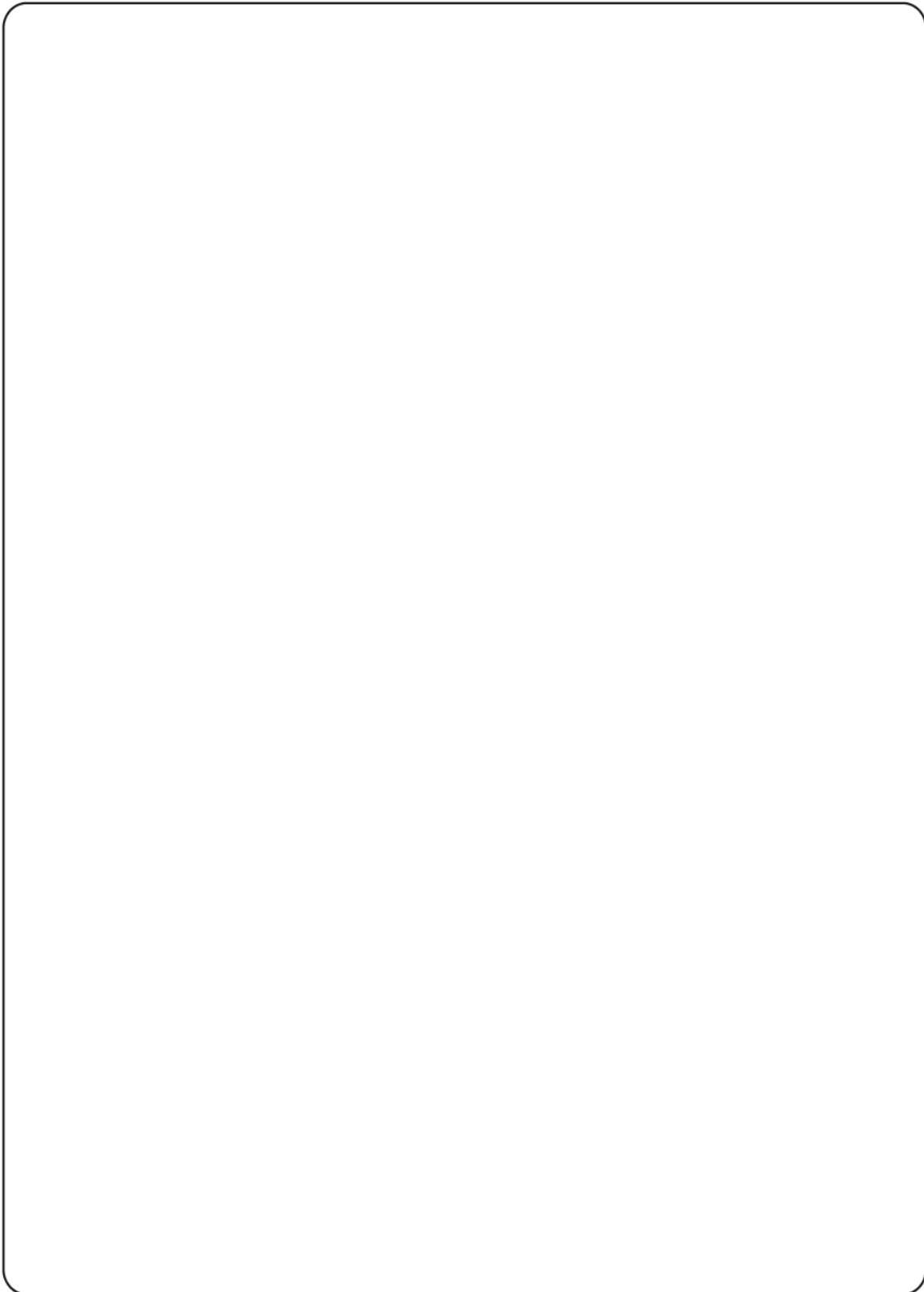
Membership_type.....

Year_joined.....

[3]

- (b) Design an online data entry form which could be used to enter the details of one member, using all the fields shown in the table.

In your design include appropriate spacing for each field and navigational aids. Do **not** include data in the form.



- (c) A spreadsheet has been created to show which members are attending the presentation evening and who has paid.

Part of the spreadsheet is shown.

	A	B	C	D	E	F	G	H	I	J	K
1	Tawara Rowing Club										
2	Name	Family name	Full name	Type of member	Attending	Number attending	Total owed	Paid		Cost	\$
3	Nor	Kwa	Nor Kwa	Social	Y	2	50	Y		Junior	10
4	Ahmed	Othman	Ahmed Othman	Junior	Y	3	30	Y		Senior	20
5	Zara	Png	Zara Png	Senior	Y	1	20	N		Social	25
6	Adam	Mazian	Adam Mazian	Social	N	0	0	N			

Write down **three** of the formatting features that have been used in the part of the spreadsheet shown.

1.....

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2.....

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3.....

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[3]

- (d) A formula has been created and placed in cell G3. The formula is:

`IF(E3="Y",VLOOKUP(D3,J$3:K$5,2)*F3,0)`

Explain what the formula does.

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[6]

- (e) The secretary needs to identify different types of members in the club.

Describe the steps he would take to sort the data by type of member so that Junior members are at the top of the list.

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[3]

Presentations – 2021/20 IGCSE 0417**1. Nov/2020/Paper_11/No.12c**

- (c) The teacher asks the students to create a presentation for their parents to explain to them about the history of their town.

Describe the features that the students must include to make the presentation appeal to the adults.

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..... [4]

2. Mar/2020/Paper_12/No.13

A sales representative is planning a presentation about a new product. He is considering whether to use a multimedia presentation or to give a talk and hand out leaflets.

- (a) Discuss the advantages and disadvantages of using a multimedia presentation rather than printed leaflets.

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[8]

- (b) The sales representative decides to create a multimedia presentation and wishes to place an image of the new product on one of the slides.

Explain the steps he would need to take to do this.

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[4]

- (c) He searches his company website to find a suitable image for his multimedia presentation. Part of the markup language from the web page to load the image is shown.

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<img src ="New_product.jpg" alt="company logo">
```

When the markup is run, the words 'company logo' are displayed and not the image.

Explain why this may be the case.

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[2]

3. June/2020/Paper_12/No.11

A headteacher is planning to produce a presentation to showcase the school's achievements.

- (a) Describe **two** methods the headteacher could use to gather information about the requirements of the target audience.

1.....
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2.....
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[2]

- (b) The presentation is to be shown on large monitors at the entrance to the school. The school is planning to embed music into the presentation so that music could be played as the presentation is shown.

Describe the steps the headteacher would need to take to play music in the background of the slides.

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[4]

- (c) After showing the presentation to the parents the headteacher wishes to use the presentation to show to young children to encourage them to come to the school.

Describe the features that the headteacher must include to make the presentation meet the needs of an audience of young children.

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[4]

Networks and the effects of using them – 2021/20 IGCSE 0417**1. Nov/2021/Paper_11/No.7**

Bluetooth is a method of communication to connect devices together.

Describe how a smartphone can use Bluetooth to connect to another device.

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..... [4]

2. Nov/2021/Paper_11/No.8

An organisation uses the internet and an intranet.

(a) Explain how the purpose of the internet differs from the purpose of an intranet.

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..... [4]

Employees in the organisation are allowed to access the intranet using their smartphones.

The employees are required to secure their smartphones using either facial recognition, passwords or voice recognition.

(b) Tick (✓) whether the following statements refer to **facial recognition**, **password** or **voice recognition**.

	Facial recognition (✓)	Password (✓)	Voice recognition (✓)
This method cannot access the smartphone unintentionally			
The accuracy of this method can be affected by noise			
This method requires the use of the smartphone's camera			
This method could be compromised by shoulder surfing			

[4]

3. Nov/2021/Paper_12/No.4

Write down the most appropriate network device to match the following statements. Your answers should be different in each part.

- (a) This network device checks the data packet arriving from one computer and sends the data to a specific computer.

..... [1]

- (b)** This network device sends the data packet from a computer to all devices connected to it.

..... [1]

- (c)** This network device connects a LAN to the internet.

..... [1]

- (d) This network device connects one LAN to another with the same protocol.

..... [1]

4. Nov/2021/Paper 12/No.5

The Internet of Things (IoT) is a computer network which allows users to control household devices remotely. It has many benefits, for example a user can turn on the house central heating via a smartphone. The IoT can use WiFi and Bluetooth which can cause problems regarding data security.

Describe the methods that could be taken to protect the user's data.

[6]

5. Nov/2021/Paper_12/No.7

Rockit Motors recently created a new car sales website. The website uses internet shopping features. Customers can ask questions of the virtual salespeople on the website, and then purchase the car on the website.

(a) Describe **two** other features of internet shopping.

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..... [2]

(b) Discuss the benefits and drawbacks of using internet shopping for Rockit Motors.

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..... [6]

- (c) Before the website became operational it needed to be tested. The web designer created a test plan including module and whole system testing.

Explain the difference between module and whole system testing.

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..... [4]

6. Nov/2021/Paper_12/No.13

The internet has both moderated and unmoderated forums.

Explain what is meant by a moderated forum.

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..... [4]

7. Nov/2021/Paper_13/No.6

The internet has both moderated and unmoderated forums.

Explain what is meant by an unmoderated forum.

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..... [4]

8. Mar/2021/Paper_12/No.10

Computer data can be stored on physical storage devices. Data can also be stored in the 'cloud'.

- (a) Explain what is meant by the cloud, giving **two** advantages of storing data in the cloud compared with physical storage devices.

Explanation.....

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Advantage 1.....

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Advantage 2.....

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[4]

- (b) Tick (✓) whether the following storage devices are examples of optical, magnetic or solid state storage.

	optical (✓)	magnetic (✓)	solid state (✓)
Flash drive			
Hard disk drive			
Blu-ray disc drive			
SSD			

[4]

9. June/2021/Paper_11/No.6

You have been asked by the secretary of a soccer club to create a website to publicise its results, fixtures and other events.

When the website has been created it has to be published on the internet. You plan to upload it onto the internet using FTP.

(a) Explain what is meant by FTP.

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[2]

(b) Explain how to upload and publish the content of a website using FTP.

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[4]

(c) Before the website is published it needs to be tested.

Write down **three** different features of the web pages that could be tested. For each feature, describe the method you would use to carry out the test.

Feature 1.....

Method.....

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Feature 2.....

Method.....

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Feature 3.....

Method.....

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[6]

10. June/2021/Paper_11/No.8

Compare and contrast the features of a switch and a hub.

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[6]

11. June/2021/Paper_12/No.9

(a) Describe **two** uses of a company intranet.

1.....

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2.....

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[2]

- (b) Social networking is used to communicate with friends; this is one use of the internet.

Describe **four** other uses of the internet.

- 1.....
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- 2.....
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- 3.....
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- 4.....
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[4]

- (c) A major part of the everyday use of the internet is social networking. Currently some social networks are not policed. The owners of a website have full discretion on what material is removed and what is allowed to be kept.

Discuss the benefits and drawbacks of policing social networking sites.

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[8]

12. June/2021/Paper_13/No.5

Complete the sentences using the most appropriate item from the list.

blog	cookie	email	fax
search engine	social media	web browser	wiki

(a) A piece of software that allows a user to display a web page is called a

..... [1]

(b) A personal internet journal is called a

..... [1]

(c) A web application that allows a group of people to edit the content is called a

..... [1]

13. June/2021/Paper_13/No.7

A family has purchased a wireless router for use in their home to allow their devices to be connected via WiFi to form a wireless local area network (WLAN).

- (a) When the family purchased the wireless router they were advised to change the default password.

Explain why they should change the default password.

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[2]

- (b) Describe the process of using WiFi to connect to a WLAN.

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[4]

14. Nov/2020/Paper_11/No.3

A variety of network devices can be used to connect computers together.

- (a) Complete the following sentences using the most appropriate network device from the list. Your answers must be different in each case.

an access point

a bridge

a hub

a modem

a network interface card

a switch

A device used to connect a Local Area Network (LAN) to another LAN that uses the same protocol is called

A device used to convert a computer's digital signal to an analogue signal for communication is called

A device that connects a number of other devices and sends data to one specific device only is

An item of hardware in a computer that allows a device to connect to a network is

[4]

A router is used to connect a LAN to the internet. A message is sent from the router to another router.

(b) Give the name of the part of the router where the IP addresses are stored.

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..... [1]

(c) Explain how the data from a router is routed.

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..... [5]

15. Nov/2020/Paper_12/No.5

(a) Compare and contrast an intranet with the internet.

[8]

(b) Protocols are associated with the internet and an intranet.

Identify **three** protocols and for each one, identify a use.

Protocol 1

Use

.....

Protocol 2

Use

.....

Protocol 3

Use

.....

[6]

16. Mar/2020/Paper_12/No.2

Tick (✓) whether the following statements refer to the **internet** or an **intranet**.

	internet (✓)	intranet (✓)
This type of network is public		
This is the more secure type of network		
This type of network is global		
This type of network is more likely to be monitored		

[2]

17. June/2020/Paper_11/No.6

Tick (✓) which of the following statements apply to LANs, which apply to WANs and which apply to WLANs.

	LAN (✓)	WAN (✓)	WLAN (✓)
The internet is an example of this type of network			
This type of network is found in a building but is connected without cables			
This type of network is used to transmit data between Europe and North America			
This type of network is found in a building but is connected with cables			

[4]

18. June/2020/Paper_12/No.3

Complete the following sentences using the most appropriate network term.

A communication method that wirelessly connects a mobile phone to a car, to allow hands-free use of the mobile phone is

A network device that allows a stand-alone computer, using a dial-up analogue connection, to connect to an ISP is a

A network device that allows a LAN to connect to the internet is a

A wireless communication method used in WLAN is

[4]

19. June/2020/Paper_12/No.5

When using the internet, FTP can be used.

Explain what is meant by the term FTP.

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[2]

20. June/2020/Paper_12/No.9b

(b) Many of the microprocessor-controlled devices in our homes use WiFi connections.

Describe the benefits and drawbacks of using WiFi connections in this way.

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[6]

21. June/2020/Paper_13/No.3

A computer system is connected to a LAN and a WAN.

(a) Explain what a LAN is.

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[2]

(b) Explain what a WAN is.

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[2]

22. June/2020/Paper_13/No.12

A student is undertaking research for his studies. He needs to find up-to-date information and has decided to look for it using the internet.

Explain how he would check the reliability of this information.

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[6]

23. June/2020/Paper_13/No.13

A school is planning to set up a student work files area. The school is considering allowing students to log in to the student work files area either using the school's intranet or the internet.

Discuss the advantages and disadvantages of using the school's intranet rather than the internet to access this student work files area.

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[8]

Layout – 2021/20 IGCSE 0417**1. Mar/2021/Paper_12/No.4a**

The table shows a comparison of two different types of fitness tracker. A fitness tracker contains a microprocessor, is worn around the wrist and monitors physical readings of the wearer.

Name of fitness tracker	Flexi-byt 6	FitB 4
Battery life in days	20 days	7 days
Method of internet connection	Bluetooth	WiFi
Water resistant	100 m	10 m
GPS	Y	N
Cost	INR 22 855	INR 10 700

(a) You have been asked to design a poster to show this data for the two fitness trackers.

Describe how you would use **six** different design features to enhance the data in this poster. The poster must be suitable for an audience of adult customers.

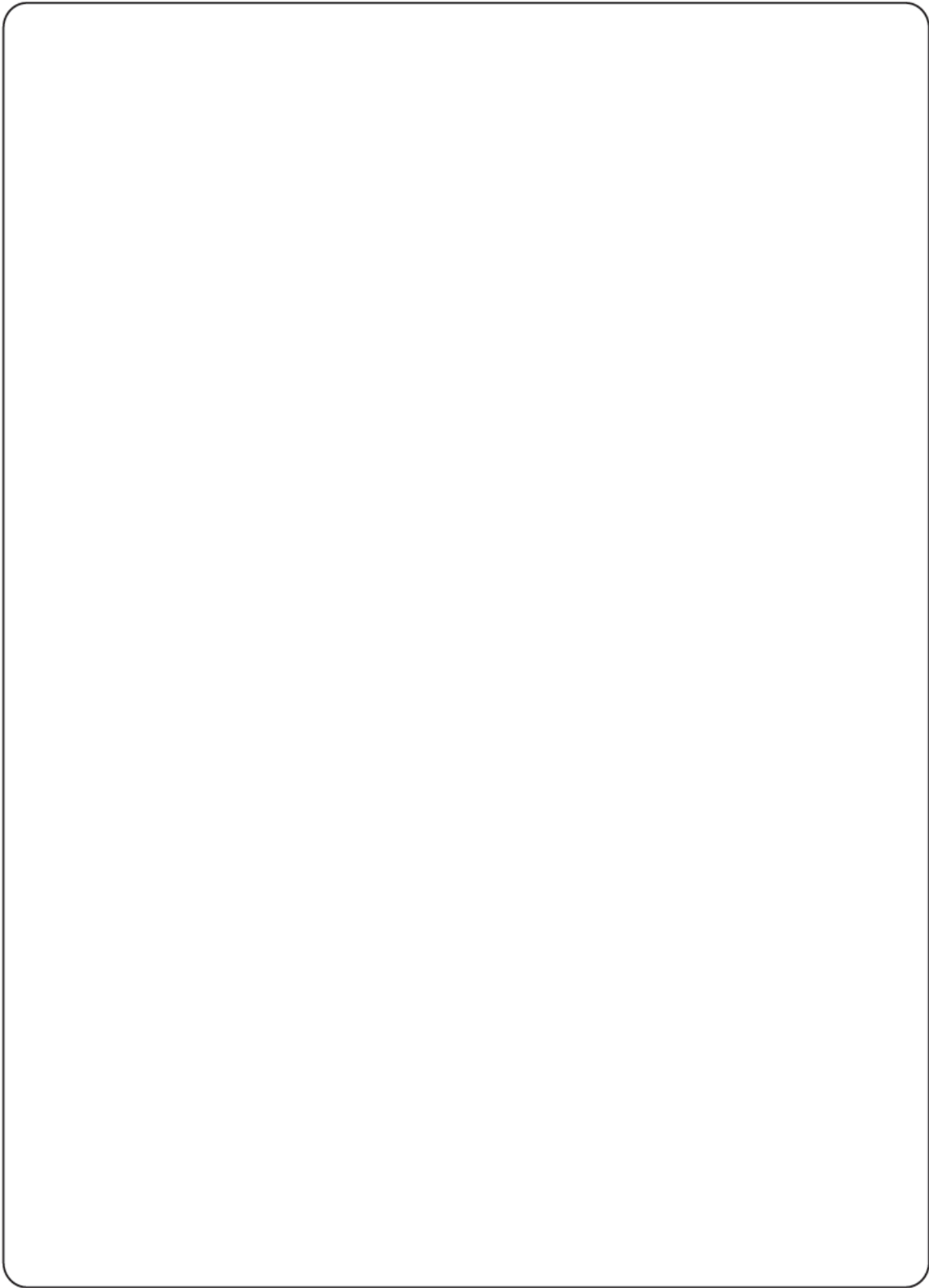
- 1.....
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- 2.....
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- 3.....
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- 4.....
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- 5.....
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- 6.....
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[6]

2. June/2020/Paper_13/No.6b

- (b)** Design an online data entry form which could be used to enter the details of one member, using all the fields shown in the table.

In your design include appropriate spacing for each field and navigational aids. Do **not** include data in the form.



[8]

Input and output devices – 2021/20 IGCSE 0417**1. Nov/2021/Paper_12/No.2**

Tick (✓) the most appropriate printer which relates to the following statements.

	3D (✓)	Dot matrix (✓)	Laser (✓)
This printer is an impact printer			
This printer uses toner			
This printer uses an inked ribbon			
This printer uses tomography			

[4]

2. Nov/2021/Paper_12/No.6

As a student you often use a computer keyboard. This could be a virtual keyboard or a physical keyboard on a desktop computer, a laptop computer or even a smartphone.

Evaluate your use of computer keyboards in terms of health risks, and explain any strategies you use to minimise these health risks.

[8]

3. Nov/2021/Paper_12/No.11

An air-conditioning system has been fitted in a hotel bedroom. The air-conditioning system will contain fans which operate at varying speeds.

Identify the devices used in the system from the descriptions given.

(a) This device captures the temperature from the room.

..... [1]

(b) This device changes the data from the microprocessor into a form that can change the speed of the fan.

..... [1]

(c) This output device operates the fan.

..... [1]

4. Nov/2021/Paper_13/No.1

A tablet computer has input and output devices.

(a) Give **two** examples of input devices which are part of a tablet computer.

1

2 [2]

(b) Give **two** examples of output devices which are part of a tablet computer.

1

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2

..... [2]

5. Nov/2021/Paper_13/No.2

MICR, OCR and OMR are examples of recognition systems.

Tick (✓) the most appropriate recognition system which relates to the following statements.

	MICR (✓)	OCR (✓)	OMR (✓)
This system magnetises the special characters on cheques in order to read them			
This method is used to read car number plates			
A bar code is an example of this system			
If the media from this system is photocopied it cannot be read by the recognition system			

[4]

6. Nov/2021/Paper_13/No.7a

Many customers now use contactless payment and internet banking.

(a) Describe the computer processing involved in using contactless bank cards to pay for purchases.

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[4]

7. Mar/2021/Paper_12/No.6

Complete the following sentences, using the most appropriate direct data entry device.

a bar code reader	a chip reader	MICR	a magnetic stripe reader
OCR	OMR	PIN pad	RFID reader

(a) The device that reads data from a card in a contactless card system is called

..... [1]

(b) The device that reads scanned text and converts it into a readable form is called

..... [1]

(c) The device that reads the data made up of black lines and spaces on household goods is called

..... [1]

8. Mar/2021/Paper_12/No.7

A school is planning to introduce a contactless card system for pupils to pay for school meals. Each card contains an amount of money which is topped up by parents. Parents transfer amounts of money into the school system and pupils place the card close to a reader to upload the money onto the card.

- (a) Discuss the benefits and drawbacks, to the pupils, of using a contactless card system rather than paying by cash.

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[6]

9. June/2021/Paper_11/No.2

Circle **two** input devices that could be used in a smartphone.

HDD	magnetic stripe reader	microphone	mouse
remote control	speaker	touchpad	touch screen

[2]

10. June/2021/Paper_12/No.2a

(a) Circle **two** items that could be used to output data directly from a smartphone.

Blu-ray disc

microphone

mouse

screen

SD card

sensor

speaker

webcam

[2]

11. Nov/2020/Paper_11/No.1a

Complete the question using an appropriate item from the list given.

Blu-ray disc drive

DVD RAM drive

Hard disk drive

Keyboard

Laser printer

LCD monitor

Magnetic tape drive

Mouse

Pen drive

SSD

(a) Identify **two** output devices from the list.

1

2 [2]

(b) Identify **two** optical storage devices from the list.

1

2 [2]

12. Nov/2020/Paper_12/No.1a,b

Complete the question using an appropriate item from the list given.

Bar code reader	Blu-ray drive	DVD drive	Hard Disk Drive	Keyboard
Memory stick	Mouse	Optical Character Reader	SSD	TFT monitor

(a) Identify **two** solid state storage devices from the list.

1

2 [2]

(b) Identify **two** direct data entry devices from the list.

1

2 [2]

13. Nov/2020/Paper_12/No.3

A computer system consists of a number of different items of hardware.

Write down the most appropriate item of hardware that fits the following descriptions.

(a) A non-volatile device that stores the start-up commands.

..... [1]

(b) A printer that produces physical objects.

..... [1]

(c) A hardware device that reads analogue data from the environment.

..... [1]

14. Nov/2020/Paper_13/No.11

The director of a museum in China is planning an exhibition on ancient civilisations. One of the exhibits is a full representation of a 10000-year-old human. The Natural History Museum in London is planning to send a complete skeleton, but it is too fragile.

- (a) Describe how a computer could be used to create a 3D copy of the skeleton which will then be printed in China.

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..... [5]

- (b) Describe **four** benefits of using 3D printers.

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[4]

15. Mar/2020/Paper_12/No.1

A list of hardware items is given.

3D printer	Actuator	LCD monitor	Memory stick	Mouse
RAM	Touch screen	Video card	Webcam	Wide format printer

(a) Identify **two** input devices from the given list.

1.....

2.....

[2]

(b) Identify **two** internal hardware devices from the given list.

1.....

2.....

[2]

(a) Explain, giving other examples, why biometric methods are considered to be a more secure way of authorising access to the laptop computer rather than typing in passwords.

[illegible]

(b) Describe the disadvantages of using facial recognition to authorise access to the laptop computer.

[illegible]

11

17. June/2020/Paper_11/No.9

Point of sale (POS) terminals are used in supermarkets.

- (a) Tick (✓) which of the following devices used at a POS terminal are only input devices, which are only output devices and which are both.

Device	Input (✓)	Output (✓)	Both (✓)
Bar code reader			
Buzzer			
Touch screen on till			
Receipt printer			
Light sensor on the conveyor belt			
Electronic scales			

[6]

- [illegible]

18. June/2020/Paper_12/No.7

3D printer	Buzzer	Dot matrix printer	Heater
Laser printer	LCD monitor	Light	Wide format printer

- [1]

- [1]

- [1]

ICT applications – 2021/20 IGCSE 0417**1. Nov/2021/Paper_11/No.9**

Robots are used to spray paint cars in a car production company.

(a) Describe **two** other jobs that robots can perform in car production.

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..... [2]

(b) When the spray paint can is empty it needs to be refilled. There is a sensor in the can which measures the amount of paint.

Describe the use of the sensor and microprocessor in this application.

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..... [6]

- (c) Discuss the advantages and disadvantages of the introduction of robots rather than employing humans to spray paint the cars.

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..... [6]

2. Nov/2021/Paper_13/No.3**(a)** Identify **two** applications that use expert systems.

1

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2

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[2]

(b) Identify **three** components found in an expert system.

1

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2

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3

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[3]

3. Nov/2021/Paper_13/No.7b

Fewer and fewer customers now use high street banks, preferring to bank online using the internet.

(b) Discuss the advantages and disadvantages of internet banking for the customer.

[6]

4. Nov/2021/Paper_13/No.9a,b

Rockit Motors has opened a car store in a shopping mall.

Customers can test drive the cars they are planning to purchase using virtual reality systems within the store.

(a) Name **two** devices which would be used in this virtual reality system.

1

2

[2]

(b) Explain the term virtual reality.

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..... [3]

5. Mar/2021/Paper_12/No.4b

(b) Describe the computer processing involved in the use of a microprocessor-controlled fitness tracker when displaying and monitoring the blood pressure of the user.

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..... [4]

6. June/2021/Paper_11/No.4

Many banks have reduced the number of staff in their branches and replaced them with automatic teller machines (ATMs). These ATMs, which can be located within the bank, can be used by customers to deposit and withdraw money from their bank accounts.

(a) ATMs can be used to deposit cheques.

Describe the computer processing involved in depositing a cheque at an ATM.

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[6]

(b) Customers can visit these banks or use internet banking.

Discuss the advantages and disadvantages to a customer of visiting the bank rather than using internet banking.

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[6]

7. June/2021/Paper_11/No.13

RockIT Airlines representatives use a computer booking system to book flights for customers.

A representative from the airline types in the customer reference number, the number of passengers, departure time, departure date, departure airport and the destination airport.

A customer is planning to take a flight from London Heathrow Airport. The representative types in a code LHR for London Heathrow Airport. One of the reasons for using a code for the airport is to improve data accuracy.

(a) Describe **two** other advantages of using a code rather than typing out the full name.

- 1.....
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- 2.....
.....

[2]

(b) Describe the importance of data accuracy when making a booking.

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[2]

(c) Describe the processing and outputs involved in making the booking.

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[6]

8. June/2021/Paper_11/No.14

A road through a village has a speed limit of 45 kilometres per hour. The police are checking and recording the speed of vehicles passing through the village using measuring hardware and software, so they can produce a report of their findings.

(a) Explain the difference between measurement and control when using microprocessors.

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[2]

(b) Describe the role of the microprocessor in this scenario.

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[4]

9.

Tick (✓) whether the following are examples of **control**, **measurement** or **modelling** applications.

	control (✓)	measurement (✓)	modelling (✓)
Personal finance			
Weather forecasting			
Burglar alarms			
Weather stations			

[4]

- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

ICT applications – 2021/20 IGCSE 0417**1. Nov/2021/Paper_11/No.9**

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(a) Describe **two** other jobs that robots can perform in car production.

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..... [2]

(b) When the spray paint can is empty it needs to be refilled. There is a sensor in the can which measures the amount of paint.

Describe the use of the sensor and microprocessor in this application.

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..... [6]

- (c) Discuss the advantages and disadvantages of the introduction of robots rather than employing humans to spray paint the cars.

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..... [6]

2. Nov/2021/Paper_13/No.3**(a)** Identify **two** applications that use expert systems.

1

.....

2

.....

[2]

(b) Identify **three** components found in an expert system.

1

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2

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3

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[3]

3. Nov/2021/Paper_13/No.7b

Fewer and fewer customers now use high street banks, preferring to bank online using the internet.

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[6]

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Rockit Motors has opened a car store in a shopping mall.

Customers can test drive the cars they are planning to purchase using virtual reality systems within the store.

(a) Name **two** devices which would be used in this virtual reality system.

1

2

[2]

(b) Explain the term virtual reality.

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..... [3]

5. Mar/2021/Paper_12/No.4b

(b) Describe the computer processing involved in the use of a microprocessor-controlled fitness tracker when displaying and monitoring the blood pressure of the user.

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..... [4]

6. June/2021/Paper_11/No.4

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(a) ATMs can be used to deposit cheques.

Describe the computer processing involved in depositing a cheque at an ATM.

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[6]

(b) Customers can visit these banks or use internet banking.

Discuss the advantages and disadvantages to a customer of visiting the bank rather than using internet banking.

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[6]

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A representative from the airline types in the customer reference number, the number of passengers, departure time, departure date, departure airport and the destination airport.

A customer is planning to take a flight from London Heathrow Airport. The representative types in a code LHR for London Heathrow Airport. One of the reasons for using a code for the airport is to improve data accuracy.

(a) Describe **two** other advantages of using a code rather than typing out the full name.

- 1.....
.....
- 2.....
.....

[2]

(b) Describe the importance of data accuracy when making a booking.

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[2]

(c) Describe the processing and outputs involved in making the booking.

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[6]

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A road through a village has a speed limit of 45 kilometres per hour. The police are checking and recording the speed of vehicles passing through the village using measuring hardware and software, so they can produce a report of their findings.

(a) Explain the difference between measurement and control when using microprocessors.

.....

.....

.....

.....

[2]

(b) Describe the role of the microprocessor in this scenario.

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[4]

9. June/2021/Paper_12/No.1

Tick (✓) whether the following are examples of **control**, **measurement** or **modelling** applications.

	control (✓)	measurement (✓)	modelling (✓)
Personal finance			
Weather forecasting			
Burglar alarms			
Weather stations			

[4]

10. June/2021/Paper_12/No.6

Humans can send unmanned aircraft into storms to collect wind speeds and temperature data. The unmanned aircraft have sensors attached to them which send the data back to computers at the weather station. The computers analyse the data.

Previously the aircraft was manned and all the data was collected and flown back to the weather station.

Discuss the advantages and disadvantages of using the unmanned aircraft rather than using the manned aircraft.

[illegible]

[8]

11. Nov/2020/Paper_11/No.5

The Fish Bowl is a large outdoor music arena. It uses an online booking system.

A customer has entered her data into the booking system using an online data entry form.

Name of show	<input type="text" value="Uni Direction"/>
Date of performance	<input type="text" value="18<sup>th</sup> March 2020"/>
Time of performance	<input type="text" value="7:30 pm"/>
Seat position	<input type="text" value="Stalls"/> Circle Upper Circle
Number of Adults:	<input type="text" value="2"/>
Number of Children:	<input type="text" value="0"/>

(a) Evaluate this online data entry form.

[6]

(b) When a person makes a booking, a ticket will be produced for each person. The ticket will be sent by email and can then be printed out or used on a smartphone to gain entry to the event.

Design a ticket that includes elements for both visual and electronic checking for the forthcoming music event.

[illegible]

[6]

12. Nov/2020/Paper_11/No.8

Autonomous vehicles are being tested on some of the world's roads. These vehicles can travel in convoys with each vehicle following the one in front with a set distance between them. The whole operation is computer controlled. If the vehicle in front slows down, then the following vehicle also slows down to maintain the distance between them.

A proximity sensor is used to detect how close the vehicle is to the vehicle in front.

Describe how the microprocessor would maintain the set distance between the vehicles.

[6]

13. Nov/2020/Paper_11/No.12a

A teacher is teaching students about history using a virtual reality (VR) system.

(a) Identify **three** devices that could be used with a VR system.

- 1
- 2
- 3 [3]

(b) The teacher carefully monitors the students' use of the VR system. She only allows them 20 minutes on the device before taking a break. This is to ensure that they remain healthy whilst using it.

Identify **three** health problems associated with the prolonged use of VR systems.

- Problem 1
-
- Problem 2
-
- Problem 3
- [3]

14. Nov/2020/Paper_12/No.4

The temperature in a glasshouse is controlled by a computer. A program is being designed to open and close the glasshouse windows. If the temperature is too hot, then the windows will open; otherwise the windows will close.

The systems analyst has produced a number of different instructions to show how the system works. Part of the instructions are shown.

(a) Complete the instructions by writing the most appropriate technical terms to explain how the windows are operated.

- Data is read by the sensor.
- data is output from the sensor.
- Data from the sensor is sent to the microprocessor via the
.....
- If the temperature is greater than the
- The microprocessor sends a signal to the

[4]

(b) Circle the **two** most appropriate input devices associated with the computerised glasshouse.

Chip and PIN reader

Hard Disk Drive

Laser printer

LED monitor

Moisture sensor

Numeric keypad

[2]

(c) Another use of computer control is in the manufacture of cars.

Discuss the benefits and drawbacks of using computer-controlled systems rather than humans to build a car.

[6]

15. Nov/2020/Paper_12/No.8

Many supermarkets now use the internet and allow customers to buy their products online.

(a) Explain, in detail, the effects that online shopping has had on supermarkets.

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..... [4]

(b) When customers shop online, they can pay using a debit card.

Describe measures that customers could use to reduce fraud when using a debit card online.

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..... [5]

16. Nov/2020/Paper_13/No.7

A house contains a microprocessor-controlled central heating system.

(a) Identify **two** input devices that would be used in this system.

1

2

[2]

(b) Describe how a microprocessor would use the data from these devices to control the central heating system.

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..... [6]

17. Nov/2020/Paper_13/No.8d

The heat times are measured by a computer system, but could be measured by officials with stopwatches.

- (d) Discuss the advantages and disadvantages of using computers in measurement rather than humans.

[6]

18. Nov/2020/Paper_13/No.12

Autonomous vehicles such as taxis are being tested on the world's roads. This type of taxi is able to drive between two points without the driver having control of the vehicle. The vehicles use satellite navigation and wireless technology with sensors to navigate and control the vehicle.

Evaluate the use of these technologies when navigating and controlling vehicles in this way.

[8

19. Mar/2020/Paper_12/No.3

Chess players can use expert systems to help them practise chess moves.

Name **two** other applications which involve the use of expert systems.

1

.....

2

.....

[2]

20. Mar/2020/Paper_12/No.10a,b,c,d,e

Arjun is taking a gap year between his studies and will be travelling through Kenya. He needs to remain in contact with his parents and is considering using either a cell phone or VoIP.

- (a) Describe the benefits of using each of these communication methods to stay in contact with his parents.

Cell phone

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.....

.....

VoIP

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.....

.....

[4]

- (b) From time to time Arjun's parents transfer money from their bank account to his bank account using online banking.

Identify **one** type of transaction they cannot do using online banking.

.....

.....

[1]

- (c) When Arjun logs onto his online banking he needs to enter his username and password. The system may also ask him to provide an answer to a security question.

Tick (✓) whether the following are appropriate examples of a security question or not.

	Appropriate (✓)	Not appropriate (✓)
How old are you?		
What is your mother's maiden name?		
What is your PIN?		
Which town were you born in?		

[2]

(d) Give **three** benefits of Arjun using online banking in this scenario.

- 1.....
.....
- 2.....
.....
- 3.....
.....

[3]

(e) Give **two** drawbacks of Arjun using online banking in this scenario.

- 1.....
.....
- 2.....
.....

[2]

Discuss how their use has affected the nature of employment in the car production industry.

[illegible]

[6]

22. Mar/2020/Paper_13/No.9a

(a) Describe **two** drawbacks in terms of lifestyle changes this has produced for the users of such devices.

- 1.....
- 2.....

[2]

Graphs and charts – 2021/20 IGCSE 0417**1. Nov/2021/Paper_12/No.8**

You are creating a presentation on the World Games. You have created a spreadsheet showing the number of gold, silver and bronze medals awarded to different countries.

You are planning to create a graph in the presentation showing the country, the number of gold medals and the total number of medals.

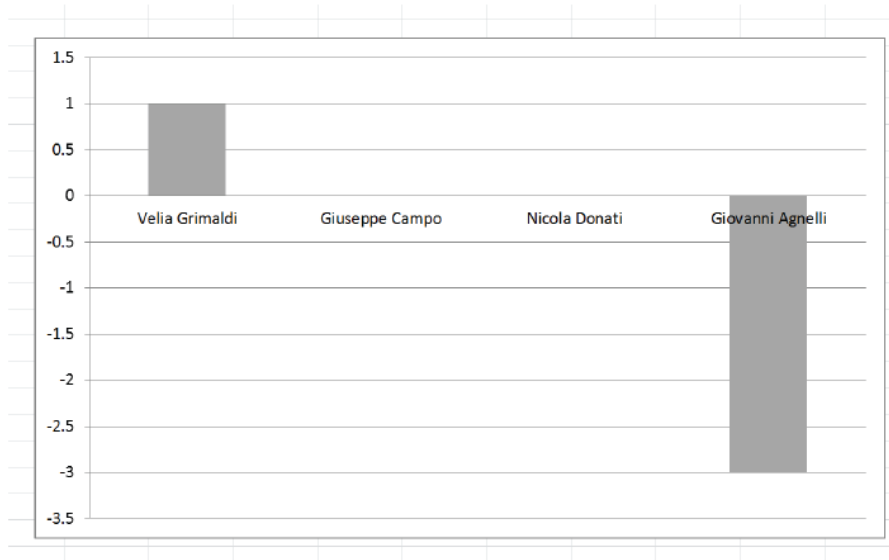
	A	B	C	D	E	F
1		<u>World Games Medals</u>				
2						
3		Country	Gold	Silver	Bronze	Total
4	1	Italy	153	145	142	440
5	2	United States	142	131	109	382
6	3	Germany	137	111	138	386
7	4	Russia	137	110	72	319
8	5	France	101	102	105	308
9	6	China	68	55	27	150
10	7	Great Britain	61	89	210	360
11	8	Japan	55	38	53	146
12	9	Ukraine	47	36	125	208
13	10	Spain	42	42	42	126

Original data

- [6]

2. June/2020/Paper_12/No.4c

- (c) The teacher has produced a graph showing the differences between the forecast grade and the average grade for each student. The graph looks like this.



Describe the steps taken to create the graph. Include in your answer **three** improvements that could be made to the graph.

Method.....

.....

.....

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.....

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Improvement 1.....

.....

Improvement 2.....

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Improvement 3.....

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[6]

File management – 2021/20 IGCSE 0417**1. Mar/2021/Paper_12/No.3d**

- (d) Tick (✓) whether the following statements about generic image files refer to jpg, png or gif file types.

	jpg (✓)	png (✓)	gif (✓)
This file type stores still or moving images			
This file type uses lossy compression			
This file type is used for storing photographs on a digital camera			
This file type is limited to 256 colours			

[4]

2. June/2021/Paper_13/No.6

Susan is creating a database about cars and needs to save it in the shared area (S:) on the school network. It will be stored in the folder ICT which is contained in the IGCSE folder. She needs to save the file with a file name that is different from file names used by other students in the group.

- (a) Write down a suitable file name for the file so that the teacher can easily find Susan's work and identify its contents. The file name should not contain spaces.

.....
..... [1]

- (b) Write down the file path which Susan would use to store the file in the correct folder.

.....
.....
.....
..... [2]

- (c) Susan plans to work on her database at home. However, the database is very large so her teacher has told her that it needs to be reduced in size. She will then be able to attach it to an email so she can send it home.

Explain why the file size would need to be reduced.

.....
.....
.....
..... [2]

3. Nov/2020/Paper_13/No.4

Generic file formats allow data to be opened in any platform.

Identify **two** generic text formats.

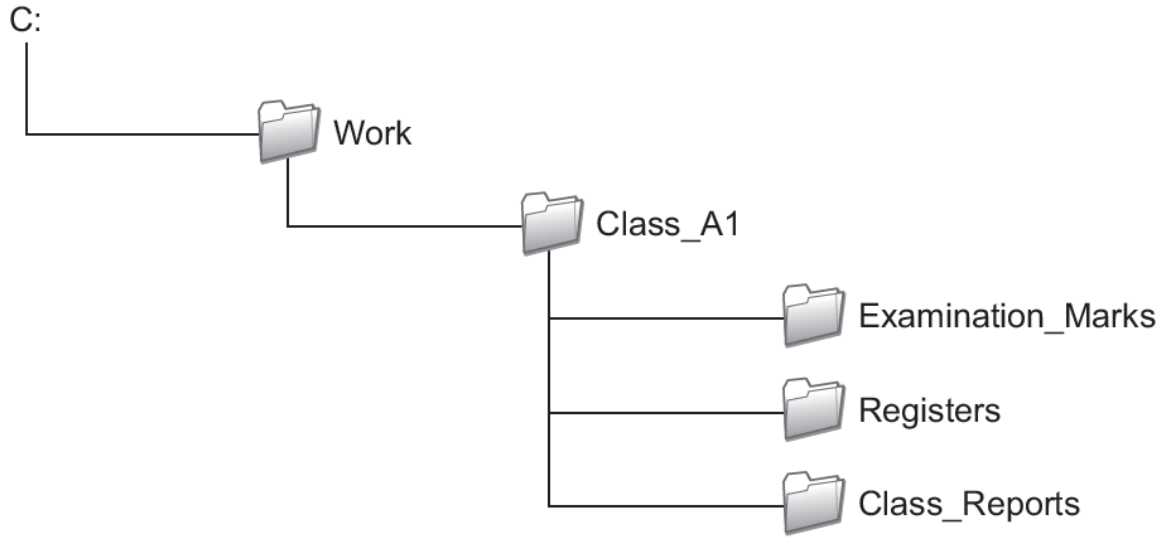
1

2

[2]

4. Mar/2020/Paper_12/No.6

A teacher has created a hierarchical file structure to save the registers and marks of each of her classes on her laptop computer. Part of the structure is shown:



(a) Write down the file path to locate a document which is stored in the folder Examination_Marks.

C:
.....
.....
.....

[3]

(b) The teacher could have saved the document as a .txt or an .rtf file format.

Describe what is meant by .txt and .rtf file formats.

.....
.....
.....
.....

[2]

Document production – 2021/20 IGCSE 0417

1. Nov/2021/Paper_11/No.13

2021 World Games

This will be the 11th World Games, a major international multi-sport event, for sports, or disciplines within a sport, that were not contested in the Olympic Games.

Dates	Thu, 15 Jul 2021 – Sun, 25 Jul 2021
Location	Legion Field, Birmingham, Alabama, United States
Host city	Birmingham, Alabama, United States
Opening ceremony	July 15
Closing ceremony	July 25
Main venue	The New Birmingham Stadium

The new layout

(a) Explain, step by step, how the table was created, without the text being entered by hand.

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..... [4]

A student is working on a project on the World Games. He has produced some information but has decided to produce a second layout including a table. The original layout and the new layout are shown.

2021 World Games

This will be the 11th World Games, a major international multi-sport event, for sports, or disciplines within a sport, that were not contested in the Olympic Games.

Dates: Thu, 15 Jul 2021 – Sun, 25 Jul 2021

Location: Legion Field, Birmingham, Alabama, United States

Host city: Birmingham, Alabama, United States

Opening ceremony: July 15

Closing ceremony: July 25

Main venue: The New Birmingham Stadium

The original layout

2. Nov/2021/Paper_12/No.10c,d

- 10 A school is planning to change the way it reports back to parents about their child's academic progress. They plan to produce a mail merged document and then email this to parents.

They have created a spreadsheet which shows the pupil's name, target, attainment and effort levels for Maths and the Science subjects.

Part of the spreadsheet is shown.

	A	B	C	D	E	F	G	H	I	J	K
1	Name		Target level	Maths		Biology		Chemistry		Physics	
2				<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>
3	Ahmal	Wulandan	6	7	2	6	2	8	1	7	2
4	Nurul	Prakoso	8	7	3	7	3	9	1	7	2

- (a) Design a suitable document layout to display the information of one pupil. The name of the pupil must be clearly shown separated from the rest of the data. It must have appropriate spacing. Do **not** include the pupil's data.

[6]

- (b) The attainment levels range from 1 to 9 and the effort levels range from 1 to 3. Before teachers are allowed to enter data, the spreadsheet needs to be tested.

Write down **one** example of extreme data to test the attainment field and **one** example of abnormal data to test the effort field.

Attainment – extreme data

Effort – abnormal data

[2]

- (c) Describe **four** advantages of using a mail merge for this document.

1

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2

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3

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4

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[4]

- (d) When the mail merge is created, a special field containing the date needs to be added. This date will change automatically each time the merged document is sent or printed.

Explain how the date field can be added.

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[3]

3. Nov/2021/Paper_13/No.9c

The manager of Rockit Motors has created many different types of documents including letters and memos for the company. Each of them is produced using its corporate house style.

(c) Explain why corporate house styles are required.

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..... [4]

4. Mar/2021/Paper_12/No.2

Falyaz has created a diary using word processing software. The diary entry for 17th May 2020 is shown.

17th May 2020

First day of the holidays today and the family went to stay in a hotel near Cherai Beach in Kerala. This was a lovely place to spend the holidays with a long stretch of beach to play on. It is called the *Princess of the Arabian Sea*. We also visited a number of the lagoons in the area and met a lot of people. The weather was lovely, and the sun shone throughout most of the day.



- (a) Write down **four** formatting features of the word processing software used to make this diary entry.

Feature 1.....

.....

Feature 2.....

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Feature 3.....

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Feature 4.....

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[4]

- (b) The original diary entry typed into the word processing software did not include an image.

Describe the steps that would be carried out by Falyaz to include in his diary entry an image taken from his digital camera.

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[6]

- (c) Name **two** other sources of digital images apart from using a digital camera.

Source 1.....

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Source 2.....

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[2]

- (d) Tick (✓) whether the following statements about generic image files refer to jpg, png or gif file types.

	jpg (✓)	png (✓)	gif (✓)
This file type stores still or moving images			
This file type uses lossy compression			
This file type is used for storing photographs on a digital camera			
This file type is limited to 256 colours			

[4]

- (e) Falyaz wants to add a header in his word processed diary.

Explain what is meant by a header and why it is needed.

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[4]

5. June/2021/Paper_12/No.12c,d

The student plans to create a table, using word processing software, to display the information he has found out about the animal.

The completed table will look like this:

Name of animal	Tiger quoll
Scientific name	Dasyurus maculatus
Pouched	No
Habitat	Australia
Conservation status	Threatened

(c) Explain how the student can create a table to enter this data.

.....

.....

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..... [2]

(d) The student has saved a picture from the internet of a tiger quoll.

Explain how he could create a new row above the Pouched row and place the picture into the right-hand cell of this new row.

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6. June/2021/Paper_13/No.12

The director of a zoo is writing a document about wallabies. He has taken an image of some wallabies (Fig. 12.1) and is planning the layout of the pages which will include part of the image. The image he plans to use is shown in Fig. 12.2.



Fig. 12.1



Fig. 12.2

(a) Name the editing technique that was used to change Fig. 12.1 to Fig. 12.2.

..... [1]

- (b) The director will include images and information about the wallabies in the document. Each page will be set out in 2 columns with a line between them.
- (i) Describe the steps taken to create the columns. Assume the software has been loaded and the text has been entered.

The Habitat

The natural habitat of the wallabies¹ of New Guinea varies by species. The **forest wallaby** inhabits wooded and brush areas, whereas the **rock wallaby** inhabits the mountain areas. The **swamp wallaby** lives in the wetlands and swamps. Wallabies feel safer by inhabiting the rougher terrain such as heavily wooded areas, cliffs and wet areas.

Some types of rock wallaby live in the southern desert on almost vertical rock walls whilst others live in a more versatile habitat. To keep their young safe in these inhospitable areas the baby wallabies which are small, weak and vulnerable live in their mother's pouch for at least eight weeks.

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[3]

(ii) Describe the steps taken to add the image as shown.

The Habitat



The natural habitat of the wallabies¹ of New Guinea varies by species. The **forest wallaby** inhabits wooded and brush areas,

whereas the **rock wallaby** inhabits the mountain areas. The **swamp wallaby** lives in the wetlands and swamps. Wallabies feel safer by inhabiting the rougher terrain such as heavily wooded areas, cliffs and wet areas.

Some types of rock wallaby live in the southern desert on almost vertical rock walls whilst others live in a more versatile habitat. To keep their young safe in these inhospitable areas the baby wallabies which are small, weak and vulnerable live in their mother's pouch for at least eight weeks.

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[4]

- (c) As the document is being written for the zoo it needs to conform to the corporate house style.

Explain what is meant by corporate house style.

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[4]

7. Nov/2020/Paper_12/No.7d

The owner of a soccer club has employed a systems analyst to create a new computerised system to store details of club members.

The systems analyst starts by researching the existing system. One way he could do this is to interview members of the soccer club.

(a) Discuss the benefits and drawbacks of individually interviewing the members.

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- (b) When the systems analyst created the new system, he had to choose data types for each field.

Write down the most appropriate data type for each field. The answers in the table must be different in each case. The data type for one field has already been identified; this data type must not be used for the other fields.

For any numeric field specify the type of number.

Field name	Data type	Example data
Year_joined		2019
Gender		F
Date_of_birth		04/11/2000
Membership_number	<i>Text</i>	01254
Cost_of_membership		\$10.50

[4]

- (c)** The systems analyst has set the data type for the Membership_number field as text.

Explain why this field has been set for a text data type rather than a numeric data type.

..... [2]

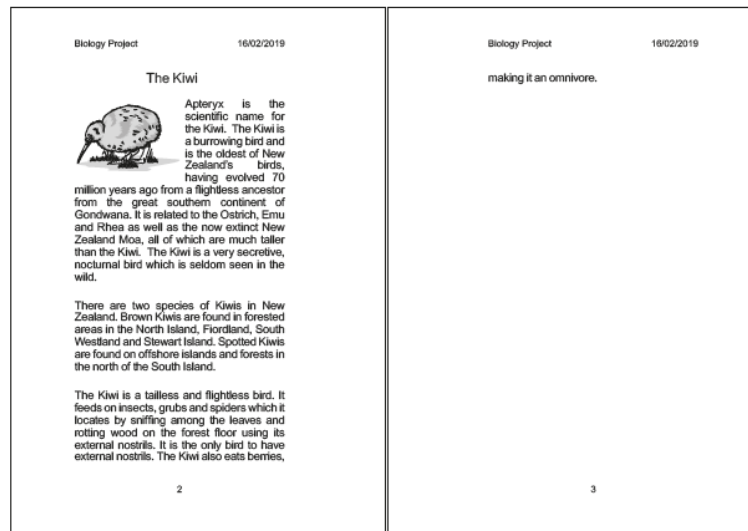
- (d) The owner of the soccer club is planning to create membership cards for all its members using mail merge. The membership card will include personal data from the new system.

Describe the steps required to perform the mail merge.

[6]

8. Nov/2020/Paper_13/No.3

A student has produced a document for her biology project. Part of the project is shown. Answer the questions relating to the document.



(a) Give the name of the extra margin between the two pages of the document.

..... [1]

(b) Give the name of the space above the document, containing 'Biology Project' and the date.

..... [1]

(c) Name the term given to the single line of text that has overflowed on to the next page.

..... [1]

(d) Name the type of alignment used for the body text.

..... [1]

(e) The student has placed an image in the document.

Name the type of formatting used to allow the text to flow around the image.

..... [1]

9. Mar/2020/Paper_12/No.9

Documents use headers, footers and margins.

The statements refer to a **header**, a **footer** or a **margin**. Tick (✓) the most appropriate term for each statement.

	header (✓)	footer (✓)	margin (✓)
Text entered that can appear at the top of each page automatically			
An area between the main content of a page and the edge of the page			
An additional space between facing pages			
Text entered that can appear at the bottom of each page automatically			

[4]

10. June/2020/Paper_13/No.4

Mason is the head of a year group at a school. Every term he needs to send to parents a report on their child's progress. This will include a written report and the percentage attendance over the term.

Each term he loads the comments from his tutors into the word processing software. He then adds the attendance data from the database. The report is then printed and sent to parents.

He has decided that in future he will use mail merge to print the reports.

(a) Give **four** advantages of using mail merge instead of typing the reports.

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- 2.....
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- 3.....
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- 4.....
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[4]

- (b)** As it is entered, the data on the database is checked using validation routines. The percentage attendance field uses a range check.

Describe, using the percentage attendance field, the steps that need to be taken to create this validation routine.

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[4]

- (c)** Before the database can be implemented the validation routines need to be tested.

Describe, using the percentage attendance field, how the validation routine will be tested by Mason.

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[4]

Databases – 2021/20 IGCSE 0417**1. Nov/2021/Paper_13/No.4**

- 4 A library system has two tables; one for borrowers and one for books. Extracts from these tables are shown.

Borrower_ID	Borrower_name	Contact_telephone	Contact_email
5404	Susan Stranks	01632 960321	rockit@cambridgeinternational.org
9867	Fei Hong Zhao	07700 900222	tawara@cambridgeinternational.org

Borrowers table

Book_ID	ISBN	Name_of_book	Author_of_book	Date_published	Borrower_ID	Date_due_back
1	0859550153	Bird of Prey	David James	1977	5404	27/10/2021
34	3301028345	The Fifth Man	Colin Turner	1998	9324	05/10/2021
35	4237681321	A View of the Temple	Yu Yan Zhang	2017	8854	07/10/2021
59	4237681321	A View of the Temple	Yu Yan Zhang	2017	5404	27/10/2021

Books table

- (a) Name the most appropriate validation check for each of these fields. Your answer must be different for each field.

ISBN

Date_due_back

[2]

- (b) (i) For the books table, name the most appropriate field that could be used as a primary key.

..... [1]

- (ii) The librarian has created a relationship between the books table and the borrowers table.

For the books table, name the most appropriate foreign key field that would be used to create the relationship.

..... [1]

- (c) The data type for Contact_telephone has been set as text.

Explain why this field has been set to text rather than integer.

..... [2]

- (d) At the end of each day the tables are searched to issue reminders to borrowers about books that are overdue.

Describe the automatic processing involved in searching and issuing of reminders for overdue books.

[6]

2. Mar/2021/Paper_12/No.9

Tawara school uses an optical mark recognition (OMR) system for its school register. An example of the register is shown. For each session of the school there are two lozenges to be shaded in.

Tawara School

Pupil Registration form

INSTRUCTIONS: Only use HB pencil when completing this form

Example:

Pupil present ☐ [A]

Pupil absent [P] ☐

Pupil late ☐ ☐

No.	Pupil Name	Mon		Tues		Weds		Thurs		Fri	
		am	pm	am	pm	am	pm	am	pm	am	pm
01		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]
02		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]
03		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]
04		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]
05		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]
06		[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]	[P] [A]

At the start of the registration period the teacher shades in a lozenge [P] on the register to show that a pupil is present and shades in a lozenge [A] for each pupil who is absent. If a pupil is late then the teacher shades in both the [P] and the [A] lozenges. The register sheets are sent to the school office to be processed and the data from them is stored in the computer's database.

- (a) Describe the inputs and computer processing of the registers when they are sent to the school office, prior to them being stored on the computer's database.

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[6]

- (b)** The headteacher of the school is considering modernising the registration system so that pupils can register using a facial recognition system.

Discuss the advantages and disadvantages of using a facial recognition registration system rather than the OMR system they currently use.

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[8]

(c) Biometric data, like facial recognition, is an example of personal data.

Give **two** other examples of personal data that could be stored on the school registration database.

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[2]

3. Mar/2021/Paper_12/No.11

The owner of a bookshop has a database of all the books she has in stock. As some of the data is being entered into the database it is checked using validation checks.

An example of some of the records in the database is shown.

Field name	Example data
Name of book	Brotherhood of Wisdom
Name of author	Colin Turner
ISBN	471837951
Date of purchase	25/02/2021
Number of copies	10
Type of book	E
Name of book	The Fourth Man
Name of author	Aadha Khatri
ISBN	0718121753
Date of purchase	18/03/2019
Number of copies	53
Type of book	H
Name of Book	Indian Temples
Name of author	Vihaan Laghan
ISBN	978147183215
Date of purchase	12/02/2019
Number of copies	30
Type of book	H

Explain, using a field name and examples of the data stored in that field in the database, why validation checks must be appropriate to the data that is being checked.

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[4]

4. June/2021/Paper_11/No.7

A systems analyst has created a new computer system to keep records in a medical centre. She has created a relational database to store the medical records of patients.

The database uses primary and foreign keys.

(a) Describe what is meant by a relational database.

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[3]

(b) Explain the difference between a primary key and a foreign key.

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[4]

(c) A dentist works at the medical centre. The dentist stores the medical records of his patients.

Describe **four** other uses of the database software that the dentist can use to help him in his work.

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[4]

- (d) The data stored on the computer system needs to be protected from unauthorised access.

Discuss the effectiveness of different methods of increasing security of this data.

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5. June/2021/Paper_12/No.5

- 5 Petr has set up a database for a science project on planets in the solar system. Part of the database is shown.

ID	Name_of_planet	Number_of_moons	Orbital_period	Rings	Gravity	Type_of_planet	First_observed
4	Mars	2	1.88	N	0.38	Regular	1610
5	Ceres	0	4.61	N	0.27	Dwarf	1801
7	Saturn	62	29	Y	1.16	Gas Giant	1610
9	Neptune	14	165	Y	1.21	Gas Giant	1846
10	Pluto	5	248	N	0.62	Dwarf	1930
11	Haumea	1	309	N	0.401	Dwarf	2004

- (a) When Petr was designing his database, he had to set the data types for each field. Complete the design table below by filling in the data types for each named field. Use the **most** appropriate data type. Each data type must be different. For any numeric field, specify the type of number.

Field name	Data type
Number_of_moons	
Orbital_period	
Rings	
Name_of_planet	

[4]

- (b) Operators such as AND, OR, NOT, LIKE, >, >=, <, <=, =, <> can be used to search Petr's planet database. The search criteria for all the gas giant planets with more than 20 moons would look like this:

Type_of_planet = "Gas Giant" AND Number_of_moons > 20

Write down the search criteria that will produce a list of planets that are not gas giants but have at least one moon and were first observed after 1800.

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..... [7]

- (c) Write down the names of the planets that are not gas giants but have at least one moon and were first observed after 1800.

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..... [2]

- (d) Petr has copied the data from the Orbital_period field into a spreadsheet. The data for the orbital period for Mars, 1.88, is stored in cell A2. In cell B2 he has entered a function of:

ROUND(A2,0)

Explain in detail the function used in cell B2.

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..... [2]

6. June/2021/Paper_13/No.10

Aimi works for a shop that sells toys. She is setting up a relational database of the stock in the shop. She has started designing the database. Aimi has written down the questions that are asked about each toy and needs to produce appropriate field names from them. An example of the type of data that is to be stored is shown.

What is the toy? Tawara Doll

Who manufactured the toy? Tinky

What year was it manufactured? 2020

What price was it bought for? \$12.99

- (a) Complete the design table below by filling in an appropriate field name for each question. Each field name must be different. Field names must not include spaces.

Question	Field name
What is the toy?	
Who manufactured the toy?	
What year was it manufactured?	
What price was it bought for?	

[4]

- (b) When Aimi created the whole database one of the fields was set as integer. However, as data is entered Aimi realises that the field should have been set to two decimal places.

Describe the steps that need to be taken, by Aimi, to change the field from an integer to a decimal. This field will be set to two decimal places.

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[4]

- (c) Aimi created a relational database but could have created a flat file database.

Discuss the advantages and disadvantages of using a relational database rather than a flat file database.

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[6]

7. Nov/2021/Paper_11/No.7

A new database system has been set up for a bookshop. Part of a record from the database system is shown. Each field has a validation check which needs to be tested.

- (a) For each field identify the most appropriate validation check. Each check must be different. The validation checks for two fields have already been identified; these types of validation check must not be used for the other fields.

Field name	Data	Validation check
ISBN	9781471837951	
Name_of_book	A View of the Castle	<i>Presence check</i>
Purchase_price	16.99	<i>Range check</i>
Year_published	2018	
Date_acquired	31/01/2019	

[3]

- (b) The Purchase_price field uses a range check. The prices of books range from 1 to 100.

Identify **three** items of test data which could be used with the Purchase_price field, giving reasons for your choice. The reasons must be different in each case.

Item 1

Reason

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Item 2

Reason

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Item 3

Reason

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[6]

8. Nov/2020/Paper_11/No.10a,b

A student is creating a database for her geography project to show all the earthquakes that occurred in 2019. She has produced part of the database which is shown.

	Country	Magnitude	Depth(km)	
	Vanuatu	6.9	26	
	Vanuatu	6.7	24	
	Indonesia	6.1	29	
	Vanuatu	6.7	27.6	
	Nepal	4.1	10.2	
	Myanmar	6.9	136	
	Japan	6.2	9	
	Japan	6	8	
	Vanuatu	6.4	16	
	Japan	7	10	
	Ecuador	7.8	20.6	
	South Georgia	6.2	14	
	Ecuador	6.2	14	
	Ecuador	6	10	
	Mexico	6	16	
	Mexico	6	10	
	Vanuatu	7	24	

When she has completed her database, she needs to carry out some searches on the data. To search for all the earthquakes with a depth of more than 20 km she will need to type the following search criteria.

Depth(km) >20

- (a) Write the search criteria to find all the earthquakes of a magnitude greater than or equal to 6.5, with a depth less than 15 km.

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 [5]

- (b) Give the name of the country that satisfies the search criteria in part (a).

..... [1]

9. Mar/2020/Paper_12/No.9

A headteacher plans to use a computer database to keep records of the members of staff that teach in her school. She must choose between using a flat file database or a relational database.

(a) Explain the differences between a flat file database and a relational database.

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[2]

(b) The school keeps details of the teachers in one file and the subjects they teach in another file. A teacher teaches more than one subject. Describe the steps the headteacher would need to take to create a relational database from this data.

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[4]

10. June/2020/Paper_12/No.1

The 2020 Olympic Games committee is producing a database to show the medal winners in the cycling events.

It is important that the correct data type is used in each of the fields.

(a) Tick (✓) the most appropriate data type for each of the following fields.

	Boolean (✓)	Numeric (✓)	Text (alphanumeric) (✓)
Athlete_name			
Gold_medal (Y/N)			
Age			
Name_of_country			

[4]

- (b) A report has been produced that shows the male gold medal winners from the past three Olympic Games.

Write down **six** of the formatting features that have been used in the report.

Press Release: Mountain Bike competitions

The gold medalists for the 2008 to 2016 games in the Mountain Bike competitions are:

2008 Julien Absalon

Julian is a French rider who won at the Laoshan Mountain Bike course in Beijing, China. In 2012 he abandoned the race but came 8th in 2016.

2012 Jaroslav Kulhavý

Jaroslav is a member of the Czech Republic team who won at Hadleigh Farm, UK.

2016 Nino Schurter

Nino is from Switzerland. He won the Rio Mountain Bike competition in 34.617 mins at the Deodoro cycling base.

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- 3.....
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- 4.....
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- 5.....
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- 6.....
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[6]

11. June/2020/Paper_13/No.6a

The secretary of the Tawara Rowing Club is organising a presentation evening for its members. A systems analyst is creating a database for the club to store the details of the members. She is also creating a spreadsheet to show who is attending the presentation evening.

The systems analyst has set up the following fields for the database.

Name_of_person	Date_of_birth	Membership_type	Contact_email	Contact_phone_no	Year_joined	Gender
Nor Kwa	2/4/2005	Social	n.kwa@rockict.com	03 2453 5673	2018	F
Adam Mazian	23/5/2003	Social	AdamM@abc.co.my	082 25 4689	2016	M
Ahmed Othman	12/03/2006	Junior	AOthman@cie.org	01223 432678	2018	M
Zara Png	1/12/1997	Senior	Zara@cbc.cn	123 3267 9999	2010	F

- (a) For the following fields write down the most appropriate data type. Each data type must be different. For any numeric field, specify the type of number.

Gender.....

Membership_type.....

Year_joined.....

[3]

- The use of social networking is a part of modern living.

(a) Define the term social networking.

..... [2]

(b) Describe the benefits of using social networking.

[6]

2. Nov/2021/Paper_12/No.10

Many young people now use social media rather than other forms of communication.

Evaluate your own use of social media and explain any eSafety strategies you could use to help minimise the potential dangers.

[6]

3. Mar/2021/Paper_12/No.5

A parent is concerned about his children sending texts. When sending a text, it is important to follow netiquette.

(a) Explain what is meant by the term netiquette.

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- (b) The parent is planning to produce a number of rules to ensure that his children follow netiquette when texting other people.

Write down **four** rules that he could include in his list.

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[4]

4. June/2021/Paper_13/No.3

A mobile phone is used for communications, either for making phone calls or text messaging.

Chang is planning an expedition to the Southern Alps in New Zealand. There is often a limited mobile phone signal in these areas. He has set his phone up so that if there is an emergency he can communicate with the rescue teams using text messaging rather than making a phone call.

Give **two** advantages of using text messaging in this way.

1.....

 2.....

[2]

5. June/2021/Paper_13/No.13

A student is looking for information on the internet for his school project. He has found a number of web pages that are useful.

(a) Explain the following terms when referring to web pages:

(i) Bookmark

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[2]

(ii) Anchor

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[2]

(iii) Hyperlink

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[2]

(b) The student has found a website that is very useful and is planning to bookmark it.

Describe the steps he will need to take to set up a bookmark for the website.

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[2]

6. Nov/2020/Paper_13/No.9

Legal documents can be sent by email, as a file attachment, or by physical fax.

(a) Describe the advantages of using emails compared with physical faxing.

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..... [5]

A legal document is sent as a file attachment.

(b) Explain the steps that need to be taken to ensure that if a virus is attached to the file, it cannot infect the computer.

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..... [4]

A computer virus has been downloaded from an infected file.

(c) Describe **three** effects this could have on a computer.

1

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2

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3

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[3]

7. Nov/2020/Paper_13/No.13

Email is a common way of communicating with other people. Netiquette is associated with emailing.

A headmistress of a school has asked the network manager to produce a document listing netiquette rules the staff and students should follow when sending emails from the school.

Describe, giving reasons, **three** rules that he could produce.

1

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[6]

8. Mar/2020/Paper_12/No.10a

Arjun is taking a gap year between his studies and will be travelling through Kenya. He needs to remain in contact with his parents and is considering using either a cell phone or VoIP.

- (a)** Describe the benefits of using each of these communication methods to stay in contact with his parents.

Cell phone

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VoIP

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[4]

2. Nov/2020/Paper_12/No.9

When software is bought, the purchaser is subject to copyright legislation.

Give **four** actions that would breach copyright legislation.

- 1
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- 2
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- 3
-
- 4
-

[4]

3. June/2020/Paper_11/No.11

Most data protection acts include the principle that data should be accurate and, where necessary, kept up to date.

List **four** other principles of a typical data protection act.

- 1
-
- 2
-
- 3
-
- 4
-

[4]

4. June/2020/Paper_13/No.8

One implication of using a computer system is that people can break the law by hacking into other computer systems. Cultural, Ethical and Moral implications can also be issues.

Tick (✓) the most appropriate implication for each of the following statements.

	Cultural (✓)	Ethical (✓)	Moral (✓)
A student has changed the contents of a company website without permission			
Writing computer games that make fun of a country's religion			
Using pictures in a document without acknowledging copyright			
Passing information to a rival company			

[4]