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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

October/November 2020

2 hours

You must answer on the question paper.

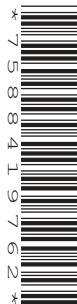
No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [].
- No marks will be awarded for using brand names of software packages or hardware.

This document has **16** pages. Blank pages are indicated.

2

- 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]

- 2 A computer system uses two types of documentation: technical and user. Some items only appear in the technical documentation and other items only in the user documentation, whereas some items appear in both.

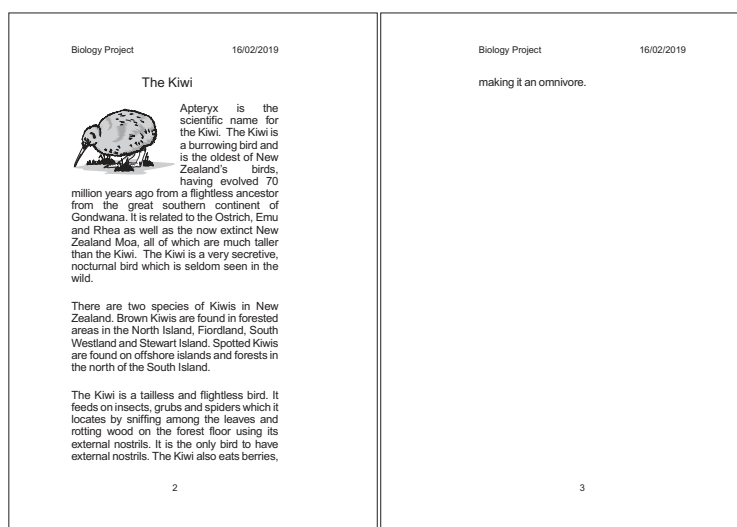
Tick (✓) whether the following items appear only in **Technical documentation**, only in **User documentation** or in **Both**.

Item	Technical documentation (✓)	User documentation (✓)	Both (✓)
Algorithms			
File structures			
Error messages			
Limitations of the system			
Hardware requirements			
Glossary of terms			

[6]

3

- 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]

4

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

Identify **two** generic text formats.

1

2 [2]

- 5** When a website is created, three web development layers are used: the content layer, the presentation layer and the behaviour layer.

(a) Describe what is meant by the content layer.

.....

.....

.....

.....

.....

..... [3]

(b) Describe what is meant by the presentation layer.

.....

.....

.....

.....

.....

..... [3]

- 6** The manager of a company is planning to create a computerised system and has asked a systems analyst to research the current system. The systems analyst could do this by using a number of different methods, but has chosen to create and send out a questionnaire to members of the company.

- (a)** Discuss the benefits and drawbacks of sending out questionnaires to members of the company.

[6]

- (b)** The system has been created. As the data is entered into the system it is verified.

Give **two** methods of verification.

1

2

[2]

6

(c) Explain why data still needs to be validated even though it has been verified.

.....

.....

.....

.....

.....

.....

.....

..... [4]

7

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.

[6]

8

- 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.

.....

.....

.....

..... [2]

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

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

.....

.....

.....

..... [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]

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

[6]

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.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [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.

.....

.....

.....

.....

.....

.....

.....

..... [4]

A computer virus has been downloaded from an infected file.

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

- 1
-
- 2
-
- 3
-

[3]

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.

-
-
-
-
-
- [3]

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

-
-
-
-
-
- [3]

- 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 10 000-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.

[5]

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

- 1
- 2
- 3
- 4

[4]

- 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]

- 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
-
-
-
- 2
-
-
-
- 3
-
-
-

[6]

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