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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

May/June 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 **20** pages. Blank pages are indicated.



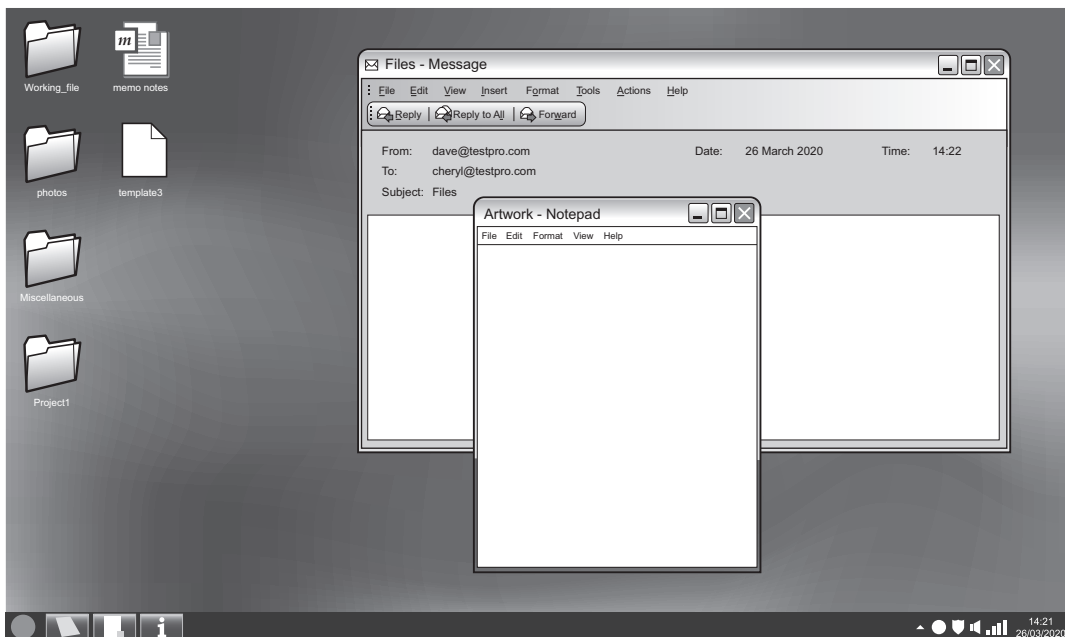
1 There are two types of software: applications and system.

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

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

[2]

2 (a) Write down the type of interface shown.



[1]

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

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2.....
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[2]

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]

- 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.

1.....

 2.....

 3.....

 4.....

[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]

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.

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[4]

- 6 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.....

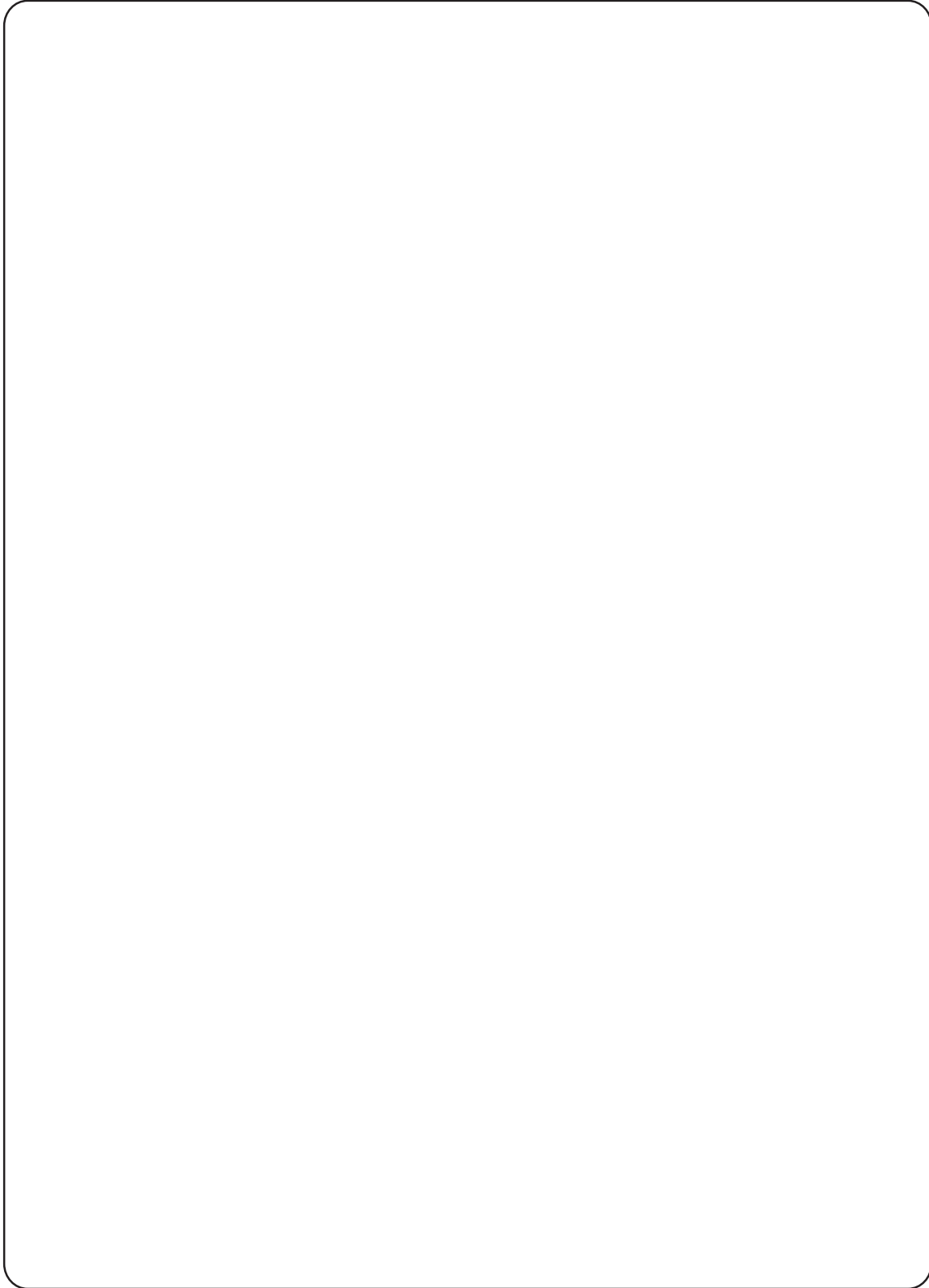
Membership_type.....

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.



[8]

- (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.....
-
- 3.....
-

[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]

7 A train company is improving security on its journeys. They are planning to introduce a facial recognition system for passengers using their trains.

(a) Discuss the advantages and disadvantages of using facial recognition systems rather than manually checking tickets.

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[6]

- (b) Facial recognition is an example of biometrics. Direct data entry devices can be in three forms. One is biometrics. The second is contactless where the item being read does not touch the reader. The third is physical where the item being read does touch the reader.

Tick (✓) whether the following are the most appropriate examples of biometrics or contactless or physical direct data entry.

	biometrics (✓)	contactless (✓)	physical (✓)
RFID			
Magnetic stripe			
Retina scan			
Voice recognition			

[4]

- 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]

- 9 Lanfen has purchased a new computer. The computer has no internal storage. All the data is stored in the cloud.

Compare and contrast computers that use cloud-based storage and computers that have internal backing storage.

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[6]

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.

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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]

11 Parallel running is a type of implementation.

Name and describe **two** other methods of implementing a new computer system. For each one give an advantage and a disadvantage of this method. Your answers must be different in each case.

Method 1.....
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Advantage 1.....
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Disadvantage 1.....
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Method 2.....
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Advantage 2.....
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Disadvantage 2.....
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[8]

- 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]

- 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]

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