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INFORMATION AND COMMUNICATION TECHNOLOGY**0417/12**

Paper 1 Theory

May/June 2021**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. Any blank pages are indicated.

- 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]

- 2 (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]

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

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

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[4]

- 3 Tick (✓) the most appropriate storage medium that should be used in each scenario.

Scenario	Magnetic tape (✓)	RAM (✓)	ROM (✓)
To store the current instructions in use by a computer			
To back up data from a school network server			
To store data temporarily			
To store the start-up instructions of a computer			

[4]

- 4 Complete the sentences below using the most appropriate word from the list.

cookies	hacking	pharming	phishing
smishing	spam	spyware	virus

- (a) The act of gaining unauthorised access to a computer system is called

..... [1]

- (b) The software that gathers data by monitoring key presses on a user's keyboard is called

..... [1]

- (c) A fake text message, that could contain a link, sent to a mobile phone is called

..... [1]

- 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** 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.

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[8]

- 7** The owner of Tawara Hotels is planning a new computerised booking system. There are ten Tawara Hotels throughout the world. The current booking system allows people to book rooms in any of the Tawara Hotels. He has employed a systems analyst to research the current system and then install the new system.

- (a)** When analysing the current booking system, the systems analyst must identify the user requirements.

Explain why it is important for the systems analyst to do this.

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[3]

- (b)** Tick (✓) the relevant stage of the systems life cycle for each of the following activities.

Activity	Analysis (✓)	Development and testing (✓)	Evaluation (✓)
Identifying the problems with the current system			
Comparing the solution with the original task requirements			
Create the file structure			
Identify limitations to the new system and improvements to be made			

[4]

- (c) Before the new booking system is installed, the systems analyst has to decide on a method of implementation. One method of implementation is pilot running.

Name **two** other methods of implementation and describe **two** benefits of each.

Name.....

Benefit 1.....

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Benefit 2.....

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Name.....

Benefit 1.....

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Benefit 2.....

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[6]

- 8 Students often use IT equipment; therefore it is important to have a good physical safety strategy.

Evaluate your own use of IT equipment, in terms of physical safety, and describe the strategies you will need to minimise the potential physical safety risks.

[illegible]

[6]

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

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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.

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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.

[illegible]

[8]

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

[illegible]

- 11** When an email is sent, it could have a digital certificate attached.

Explain why a digital certificate is required. Include in your answer items that could be found in a digital certificate.

This image shows a single sheet of white paper with ten evenly spaced horizontal dotted lines, typical of primary school handwriting practice paper. The lines run across the entire width of the page, leaving equal margins at the top and bottom. There are no vertical lines or other markings present.

12 A search engine can be used to find information on the internet.

- (a)** Describe the disadvantages of using a search engine to find information rather than typing in a web address.

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[4]

- (b)** A student is writing a project on rare animals. He uses a search engine to find information about the animals from the internet. He is concerned about the reliability of some of the information he has found.

Explain how he would evaluate the reliability of this information.

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[6]

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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