Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/11**

Paper 1 Theory **May/June 2024**

1 hour 30 minutes

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 80.
- 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 Circle **two** internal hardware components.

Actuator   Cloud   DVD   HDD

Motherboard   Printer   ROM   SD Card

[2]

2 Complete each of the following sentences.

(a) The scrambling of data being sent from one device to another device is called

.... [1]

(b) Using a computer to maintain the temperature of a room is called

.... [1]

(c) Unauthorised access to a computer system is called

.... [1]

(d) A conversation between a systems analyst and a member of staff that is part of the analysis is called

.... [1]

3 Roger is a 16-year-old student who is setting up a password for his computer. He has four ideas for the passwords he may use.

(a) Select the most appropriate password from the list and give reasons for your choice.

Roger2008

R08123

RogerZpa55w0rd

6IRrg08&

Password ....

Reasons ....

....

....

....

[3]

(b) State **one** way of avoiding password interception.

....

.... [1]

 [Turn over

4 There are risks involved when using social networking sites.

Describe **four** strategies you could use to minimise the risks of using social networking sites to make new friends.

1 ....

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2 ....

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3 ....

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4 ....

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[4]

5 One benefit of using a command line interface (CLI) is that it uses less computer memory.

(a) State **two** other benefits of a command line interface (CLI).

1 ....

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2 ....

....

[2]

(b) State **two** other types of user interface.

1 ....

2 ....

[2]

6 Many organisations use audio-conferencing or video-conferencing as some employees work from home.

Discuss the advantages and disadvantages of using audio-conferencing rather than video-conferencing.

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.... [6]

7 An organisation has provided laptops for its sales team to use when working at home and in the office.

(a) Give **two** benefits to the employees of using these laptops for their work.

Benefit 1 ....

....

Benefit 2 ....

....

[2]

(b) Give **two** issues that may arise from providing employees with these laptops.

Issue 1 ....

....

Issue 2 ....

....

[2]

(c) The network manager of the organisation has been asked to record the details of the employees who have been provided with laptops. The network manager has decided to produce an online data capture form.

Describe the main design features that should be considered to make the online data capture form easy to complete accurately.

....

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....

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.... [4]

(d) The employees are given a list of strategies to follow to reduce the health risks of using laptops.

State **four** strategies that could be included in the list.

1 ....

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2 ....

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3 ....

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4 ....

....

[4]

8 Virtual reality can be used when training for sports.

(a) State **two** other uses of virtual reality.

1 ....

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2 ....

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[2]

(b) Discuss the impact of virtual reality on everyday life.

....

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.... [6]

9 An expert system can be used to diagnose problems.

Explain the following components of an expert system.

(a) Rules base

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....

....

....

....

.... [3]

(b) Inference engine

....

....

....

....

....

.... [3]

10 An autonomous vehicle uses an automated braking system. There is a sensor at the front of the vehicle to measure the distance between the vehicle and the obstacle. The brakes are applied when the vehicle gets too close to the obstacle.

Describe the use of a microprocessor in the automated braking system.

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.... [4]

11 A company is designing a new computer system. After the system has been created and tested, it will be implemented.

(a) Compare parallel running and direct changeover. Your answer should include both similarities **and** differences.

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.... [4]

(b) There is new software in this computer system that has to be evaluated.

Describe what needs to be considered when evaluating new software.

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.... [4]

12 One of the threats to personal data is credit card cloning.

(a) Explain what is meant by credit card cloning.

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.... [3]

(b) One security improvement for this type of threat is the use of contactless cards.

Give **two** other security improvements that could be made to help reduce this type of threat.

1 ....

....

2 ....

....

[2]

13 A new patient is attending a medical centre. He completes a form with his details and gives this to the secretary who enters the details into a database.

(a) The secretary carefully checks the details entered into the database with those on the form.

State what this process is called.

.... [1]

(b) The medical centre follows a data protection act, so the patient's data is protected by law.

State **four** principles of a typical data protection act.

1 ....

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2 ....

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3 ....

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4 ....

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[4]

(c) The age of the patient is stored on the patient's medical record.

(i) Explain why it is **not** sensible to store the age of the patient in the database.

....

.... [1]

(ii) Explain what change could be made to the database to solve this problem.

....

.... [1]

(d) The database includes primary and foreign keys.

A medical ID number is used as the primary key in the database. Examples of the medical ID number include:

556 442 8483

450 557 7104

485 777 3456

(i) State **two** validation checks that could be used to check the medical ID number.

1 ....

2 ....

[2]

(ii) Describe the characteristics of primary keys and foreign keys.

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.... [4]

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