Cambridge IGCSE™

CANDIDATE
NAME

CENTRE
NUMBER

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NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

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** items of internal memory.

Actuator   Cloud   DVD   Memory stick

Printer   RAM   ROM   Sensor

[2]

2 Complete each of the following sentences which relate to health and safety issues when using ICT equipment.

(a) Trailing leads in a computer room can cause

....

[1]

(b) Continual typing on a keyboard can cause

....

[1]

(c) Staring at a computer screen for long periods of time can cause

....

[1]

(d) Spilling water onto computer equipment can cause

....

[1]

3 Remotely logging in to a college computer system requires two-factor authentication.

(a) Explain what is meant by two-factor authentication.

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....

[2]

(b) State **two** examples of methods that could be used as part of two-factor authentication.

Example 1 ....

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Example 2 ....

....

[2]

4 Vehicles can contain microprocessor controlled devices to improve transport safety. For example when a vehicle approaches a road speed sign the microprocessor sends an alert to the driver.

Discuss the positive and negative effects of using microprocessor controlled devices in transport safety.

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[6]

5 One difference between a command line interface (CLI) and a graphical user interface (GUI) is that a GUI takes up more memory.

(a) State **two** other differences between a CLI and a GUI.

1 ....

....

2 ....

....

[2]

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

1 ....

2 ....

[2]

6 (a) Explain what is meant by electronic conferencing.

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[2]

(b) State, giving a reason for your choice, the hardware required to set up an electronic conference.

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[4]

7 A college principal has decided that students can use mobile devices to take notes in lessons. Some students use laptop computers whilst others use smartphones.

(a) Describe the benefits and drawbacks of using laptop computers rather than smartphones for this purpose.

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[4]

(b) There are safety issues related to bringing laptop computers into the college. The Network Manager has decided to produce a paper-based certificate for students to prove that their laptop computer is safe to use.

Describe the main features that should be considered for the design of this certificate.

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[4]

8 **(a)** Explain the differences between virtual reality (VR) and augmented reality (AR).

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[2]

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

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[6]

 [Turn over

9 Explain the following components of an expert system.

(a) User interface

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....

[3]

(b) Knowledge base

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[3]

10 Cars can have sensors at the front and rear of the vehicle to detect obstacles.

Describe how the sensor detects an obstacle and sends the data to the microprocessor when parking the car.

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[4]

11 A company with many branches is implementing a new system. The manager is planning to implement the new system either by pilot changeover or parallel running.

(a) Contrast pilot changeover and parallel running.

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[5]

(b) When the system is implemented, technical documentation is produced.

State **three** components that would be included in the technical documentation.

1 ....

2 ....

3 ....

[3]

12 One of the risks when entering a password into a system is shoulder surfing.

(a) Explain what is meant by shoulder surfing.

....

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....

....

[2]

(b) Give **two** security improvements that could be made to reduce shoulder surfing.

1 ....

....

2 ....

....

[2]

13 When a person changes their password they are asked to verify that it has been entered correctly by re-entering the password.

(a) State what this type of verification is called.

....

[1]

(b) The keyboard used to enter the password is an input device.

Explain the differences between input and output devices.

....

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[4]

(c) State the direct data entry device that is used to read the following types of data.

(i)

....

[1]

(ii)

977135120128602

....

[1]

(iii)

....

[1]

(iv)

....

[1]

[Turn over

14 State **three** advantages of using solid state storage devices rather than magnetic storage devices.

1 ....

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2 ....

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3 ....

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[3]

15 Explain why data protection legislation is required.

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[4]

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