Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **October/November 2023**

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 **12** pages.

1   Tick (✓) **one** external device.

A sound card ☐

B pen drive ☐

C motherboard ☐

D ROM ☐

[1]

2   A computer system uses both analogue and digital data.

(a) Explain what is meant by these types of data.

(i) analogue data

....

.... [1]

(ii) digital data

....

.... [1]

(b) Digital data is processed in a computer system. Sometimes digital data needs to be converted to analogue data.

Explain why digital data may need to be converted to analogue data.

....

.... [1]

(c) Use the most appropriate phrase from the list to complete the sentences. Your answer must be different in each case.

analogue data

digital data

display a graph on a monitor

input the maximum safe water level for a river

measure acidity levels in a river

control humidity levels

open the windows in a greenhouse

    (i) A motor is used to

    ....

    .... [1]

    (ii) A DAC outputs

    ....

    .... [1]

    (iii) A sensor is used to

    ....

    .... [1]

3 Identify **three** different network communication devices and describe what each one does.

Device 1 ....

Description ....

....

Device 2 ....

Description ....

....

Device 3 ....

Description ....

....

[6]

4 A teacher is creating a database for a class library. The teacher types the details of each book into the database. The teacher has entered a number of records.

Book_number	Name_of_book	Publisher	Date_acquired	ISBN
1101	Build a computer	JB Books	02/11/2020	9780119192065
1012	IT terms	MMA Books	16/05/2021	0893603944
1414	Databases are fun	Cam Press	01/10/2009	0090116393

Identify and describe a validation check based on the data shown in the database table, which could be applied to the data as it is entered into each of the fields. Each validation check must be different.

Book_number

Validation check..

Description...

....

....

Date_acquired

Validation check..

Description ....

....

....

ISBN

Validation check..

Description...

....

....

[6]

5 A group of pupils is planning to create a newsletter for a history project. The group can either use a smartphone or a phablet computer.

(a) Explain what is meant by a phablet computer.

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.... [2]

(b) Discuss the advantages and disadvantages of using a phablet computer rather than a smartphone for this project.

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.... [6]

6 Many teachers use multimedia projectors in their lessons.

(a) State **two** health issues associated with the use of multimedia projectors.

1 ....

2 ....

[2]

(b) State **two** safety issues associated with the use of multimedia projectors.

1 ....

2 ....

[2]

7 A video of a race can be recorded using a camera either on an autonomous flying vehicle (drone) or in a helicopter. A person would be needed in the helicopter to operate the camera.

Describe **two** advantages and **two** disadvantages of using an autonomous flying vehicle (drone) to record the video of the race.

Advantage 1 ....

....

Advantage 2 ....

....

Disadvantage 1 ....

....

Disadvantage 2 ....

....

[4]

8 State the most appropriate storage medium from its description.

(a) A storage medium that stores data on the internet.

.... [1]

(b) Internal storage where the current instruction is stored.

.... [1]

(c) A solid-state storage that is used in digital cameras.

.... [1]

(d) An optical storage medium that stores high-definition (HD) movies.

.... [1]

9 A hospital administrator enters data from medical forms into a database. Validation and verification are both used when entering data to minimise errors.

Explain what is meant by validation and verification and why they are both needed in this scenario.

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.... [6]

10 The manager of the Tawara Hotel has decided to computerise the hotel's room booking system. The new booking system will allow customers to book rooms online using an app on their smartphones.

The manager has employed a systems analyst who will carry out research into the current system by examining existing documentation and completed questionnaires from staff.

(a) One item of information that the systems analyst will need to identify is problems with the current system.

State **three** other items of information that the systems analyst will need to identify.

1 ....

2 ....

3 ....

[3]

(b) Following the analysis, the systems analyst will implement the new system using either parallel running or direct changeover.

Evaluate these different methods of implementation.

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....

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.... [6]

(c) Describe the benefits and drawbacks of using an online booking system.

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.... [5]

 [Turn over

(d) The hotel uses both a WAN and a WLAN.

Describe the differences between a WAN and a WLAN.

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.... [4]

11 A clothing retailer only sells its clothes on the internet.

(a) Discuss the benefits and drawbacks to the clothing retailer of using internet shopping.

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.... [6]

(b) A customer is purchasing some new clothes from this retailer.

Describe the steps the customer would take when purchasing the new clothes using internet shopping.

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.... [5]

12 The manager of a sports club is designing an online form for members to enter their personal details. The form must be accessible to all members of the club.

(a) State **four** characteristics of a good form design.

1 ....

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2 ....

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3 ....

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4 ....

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[4]

(b) State **two** characteristics of good form design that would help users with visual impairment to enter their data.

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.... [2]