Cambridge IGCSE™

CANDIDATE NAME	

CENTRE NUMBER		CANDIDATE NUMBER	

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/11**

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 **16** pages. Any blank pages are indicated.

1   A newsagent has created a database with fields to store details of each newspaper and magazine he sells. Part of the database is shown.

Product_number	Name_of_publication	Selling_price	Frequency	Publisher
1001	Wireless Times	$1.50	Daily	Trinity Press
1015	The Daily Press	$1.50	Daily	H W Brown
1034	OME	$2.00	Monthly	Trinity Press

(a) Tick (✓) the field name that would be the most appropriate primary key for the database.

A Product_number ☐

B Name_of_publication ☐

C Selling_price ☐

D Frequency ☐

E Publisher ☐

[1]

(b) The newsagent has added a field called Bar_code to store the bar code number of the product.

Explain why a presence check is not a suitable validation check for the Bar_code field.

....

.... [1]

(c) The newsagent could use a relational database rather than a flat file database.

Describe the advantages of using a relational database rather than a flat file database.

....

....

....

....

....

....

....

.... [4]

(d) From the data shown in the part of the database, identify the most appropriate data type for the:

(i) Selling_price

.... [1]

(ii) Name_of_publication

.... [1]

2 State the most appropriate word or phrase to complete each sentence.

(a) The type of data output from a sensor is

.... [1]

(b) The type of data read by a microprocessor is

.... [1]

(c) The item of hardware that converts data from a sensor so a microprocessor can read it is

.... [1]

(d) The type of sensor that is used in a refrigerator is

.... [1]

3 A group of students are carrying out a study of the quality of river water for a project. They can either use a tablet computer or a smartphone to monitor and record their findings.

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

....

....

....

....

....

....

....

....

....

....

....

.... [6]

(b) Identify **two** devices that could be used by the students to enter data.

1 ....

2 ....

[2]

4   A headteacher is considering setting up a card system for students to buy food in the school canteen.

The headteacher is trying to decide whether to install a system that uses magnetic stripe card readers or one that uses chip and PIN card readers.

Compare the use of magnetic stripe card readers with the use of chip and PIN card readers. Your answer must include similarities and differences.

....

....

....

....

....

....

....

....

....

....

.... [6]

5   A bridge and a router are examples of networking devices.

   (a) Explain the differences between a bridge and a router.

   ....

   ....

   ....

   .... [2]

(b) IP addresses are used in computer networks.

Explain what is meant by an IP address.

....

....

....

....

....

....

....

.... [4]

(c) Explain the purpose of a routing table.

....

....

....

.... [2]

6 A cricket club secretary saves a list of players as a PDF file.

(a) Describe **two** disadvantages of saving the list of players as a PDF file.

....

....

....

.... [2]

The cricket club has a junior team for 6−8-year-old players. The secretary has produced an ePublication to attract new members to the junior team.

(b) State **two** features of an ePublication that could **not** appear on a paper poster.

1 ....

2 ....

[2]

(c) Describe the features that could be used to make the ePublication attractive to a younger audience.

....

....

....

....

....

....

....

....

....

....

....

.... [6]

7 An employee in a company has used QWERTY123 as his login password for some time.

(a) Give **three** reasons why this is **not** advisable.

1 ....

....

2 ....

....

3 ....

....

[3]

(b) Complete the sentences using the most appropriate data protection method from the list. Your answers must be different in each case.

Anti-spyware   Biometrics   A digital certificate   A dongle

Encryption   A firewall   Two-factor authentication   User ID

(i) A method which scrambles the data so that it cannot be understood is

.... [1]

(ii) A fingerprint is an example of

.... [1]

(iii) A method of guaranteeing a website is authentic is

.... [1]

(iv) A hardware device that filters the information coming through the Internet connection into a LAN is

.... [1]

(c) An employee in the company uses his company password for other accounts.

Explain why this is **not** a good idea.

....

.... [1]

8 Microprocessor-controlled devices are used in the home.

Describe, with examples, how using these devices can affect the health and fitness of their users.

....

....

....

....

....

....

....

....

....

....

....

.... [6]

9 Rowena's laptop computer contains a small capacity Solid State Drive (SSD) of 32Gb and a large capacity Hard Disk Drive (HDD) of 1024Gb.

(a) State, giving a reason for your choice, a use for the SSD and a use for the HDD in the laptop computer. Your answers must be different in each case.

(i) SSD

....

....

....

.... [2]

(ii) HDD

....

....

....

.... [2]

(b) The laptop computer also contains internal memory.

Give **two** examples of internal memory.

1 ....

2 ....

[2]

10 A teacher has set up a database for a class library. The data about the books in the class library will be entered by the teacher.

(a) The data can be verified by double data entry or visual verification.

Compare double data entry with visual verification. Your answer must include similarities and differences.

....

....

....

....

....

....

....

.... [4]

(b) When data is entered into a date field it is validated. An example of the data that could be entered is 01/04/2023

State **two** validation checks that could be used on this data.

1 ....

2 ....

[2]

11 Many Automatic Teller Machines (ATM) allow customers to print out mini statements of their bank accounts.

Describe the inputs and processing involved in printing out a mini statement.

....

....

....

....

....

....

....

....

....

....

....

.... [6]

BLANK PAGE

PLEASE TURN OVER.

12   A student has produced some work for a school project. A page of the work is shown.

A Study of the English Wallaby

The Problem

Wild wallabies (*Macropus rufogriseus*) continue to be reported across the whole of England. Despite the harsh winter conditions, these animals have flourished in recent years. Many people have contacted the police with reported sightings in gardens, quiet country lanes and even alongside busy motorways.

The original colony, thought to be the source of the English wallaby, was first reported in Derbyshire in England. These animals were believed to have been released in the 1940s from a private zoo. It is more likely that other private zoos and escapees from wallaby farms are to blame.

The Zoological Society of London keeps up-to-date records of private collections of wallabies in England, and to date there are over 100 such collections.

Many people ask why it matters if these animals have escaped, as they are not dangerous. The problem is that the introduction of invasive, non-native species can have substantial impacts on native species, and wallabies are no exception.

Fig. 12.1

(a)   The student has placed a column break in his document.

Explain the purpose of setting a column break.

....

....

....

.... [2]

(b) After running a spell check and proofreading his document the student notices that one word is still showing an error.

Explain why this word has caused an error and how the student could ensure that the error does not reappear when this word is used in future.

....

....

....

.... [2]

BLANK PAGE