



Cambridge IGCSE™

CANDIDATE
NAME

Ajiro Ndi (Ajiro Tech)

CENTRE
NUMBER

A N O 1 7

CANDIDATE
NUMBER

2 0 2 4

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

February/March 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 **12** pages. Any blank pages are indicated.

Chapter 3 - Storage devices and media

Storage device is the hardware used to read from the media

Storage media is the hardware which data is actually stored

- 1 Circle **two** items which are solid-state storage media.

X
Actuator

X
Blu-ray disc

X
Cloud

X
DVD

Flash memory

X
Hard disk

X
Printer

SD card

- 2 A computer system consists of both hardware and software.

- chapter 1 - Types and Components of the Computer system

- (a) Explain what the following types of software provide in the computer system.

Applications provide the services that the user requires to solve a given task

System designed to provide a platform on which all other software can run.

[2]

- (b) Give **two** examples of each type of software.

- (i) Applications

1 Word Processing software

2 Computer Aided Design (CAD)

[2]

- (ii) System

1 Operating System

2 Device drivers

[2]

- 3 There are two forms of data: analogue and digital. - Chapter 1 - Types and Components of the Computer System.
 Difference
 Contrast analogue and digital data.

Analogue

- is Continuous
- There are in wave form
- Needs to be converted to be stored by a Computer

Digital

- is discrete
- is in binary format (where the values of 0's and 1's can be used)
- Can be processed by a Computer without conversions

[4]

- 4 Computers contain a Central Processing Unit (CPU). - Chapter 1 - Types and Components of the Computer System
 Describe the role of the CPU in processing instructions to produce an output.

- Controls all CPU operations
- Controls the input and output devices
- Decodes instructions
- Interprets and executes commands from the computer hardware and software
- Carry out calculations
- Make logical decisions
- Retrieve data from memory

[4]

- 5 A doctor uses a gesture-based user interface. - Chapter 1 - Types and Components of the Computer System

State two other types of user interface.

1 Command line (CLI)

2 Graphical (GUI)

- Dialogue based

[2]

- 6 Augmented Reality can be used with a Global Positioning System (GPS) device. - Chapter 1 - Types and Components of the Computer system
- (a) State two other uses of Augmented Reality.

- 1 Layering filters in social media
 - 2 Gaming
- others - AR glasses in healthcare
- Safety and rescue operations
- (AR) (VR)

[2]

- (b) Describe the differences between Augmented Reality and Virtual Reality.

- Augmented Reality uses a real world setting whereas Virtual Reality only enhances a fictional (virtual) reality
- Augmented Reality can be accessed with a smartphone whereas Virtual Reality requires a VR headset device
- Augmented Reality can both be virtual and real whereas Virtual Reality is completely computer generated

[2]

7 An expert system is used to help to locate an underground water source.

- Expert systems

(a) Describe the following components of an expert system.

(i) User interface

- A method by which the expert system interact with the user

- The user answers with Yes/No type answers others

- Allows interaction through dialog boxes

[2]

(ii) Knowledge base

- repository of facts and rules

- Stores all knowledges about an area of expertise obtained from a number of expert resources

[2]

(b) Explain how an expert system is used to discover locations to drill for water.

- The user interface ask questions

- The user answers the questions with Yes/No answers

- The inference engine searches the knowledge base using the rules base

- Probabilities would be given of the likelihood of finding the water

- An explanation system explains how the expert systems arrives at the solution

- Results are displayed on the user interface.

[4]

8 A student has been the victim of a vishing scam.

(a) Explain what is meant by the term vishing.

- Voice mail phishing
- Fraudulent practice of making phone calls i.e leaving voice messages
- The caller pretends to be from a reputable Company

[2]

(b) Describe two methods that help to prevent vishing.

1. Never give out personal information to the caller

2. Phone your bank/company on a known number
others

- Don't answer the call if you do not recognise the number
- Block their number

[2]

- Chapter 7 - The Systems life cycle

9 Compare a test strategy with a test plan. Your answer should include similarities and differences.

Similarities

- Both are used in design
- Both are documents produced by the developers

Development and Testing

Differences

- Test strategy is more detailed whereas Test Plan shows test objectives
- Test strategy is a set of instructions which explains the test design whereas test plan is about the test being carried out
- The test strategy determines how the test should be carried out whereas Test plan is carried by the project manager
- Test strategy shows the method to be used to test it whereas test plan describes how to test / who will test

[6]

10 A form tutor at Tawara School is producing a database about the students in his class.

When the database is completed, it needs to be verified.

(a) Explain the importance of visual verification.

- Prevent errors when the data is copied from one medium (Paper) to another (computer)
- Compare the data against the original document

[2]

(b) An example of the date of birth stored on the database is: 15/05/2009

DD/MM/YYYY - Chapter 7 - The Systems
Life Cycle
Design phase
Validation
routine

Describe **three** validation checks that could be carried out on the date of birth.

- Format Check
Check that the format is dd/mm/yyyy
- Range Check
Month ranges from 01 to 12, Days ranges from 01 to 31
- Type Check
- The characters are all numbers

[6]

11 More people use desktop computers rather than tablet computers when working at home.

- (a) Discuss the advantages and disadvantages of using desktop computers rather than tablet computers for doing work at home. mouse, keyboard, monitor, system unit

Advantages

- All the peripherals are separate therefore easier to customise / upgrade
- Has a larger screen which makes it easier to read the documents
- Has a physical keyboard which makes it easier to enter data
- Tends to have a stronger internet signals as it can use

Wired Connection

- All the peripherals are separate therefore easier to repair

Disadvantages

- They are not portable which makes it difficult to move around
- Has trailing wires therefore can be a safety issue
- If there's a power outage the unit could lose power instantly

[6]

- (b) Desktop computers use input and output devices.

- Chapter 1 - Types and Components of the Computer System

- (i) State two input devices that can be used in a desktop computer for working at home.

1 Keyboard

2 Mouse

Others - Scanners

- microphones

- Digital Cameras

[2]

- (ii) State two output devices that can be used in a desktop computer for working at home.

1 Monitor

2 Speakers

Others - Printers

[2]

- Chapter 4 - Networks and the effects of using them

12 Describe how data is stored and managed when using cloud computing.

e.g. - One drive, iCloud, Google drive

How data is stored

- Data gets stored on remote servers accessed by the cloud with data centres
- The server is rented on a monthly basis to the user
- A user's data is stored in logical pools

How data is managed

- The data is managed by a third party cloud provider
- Cloud Service provider manage and maintain data transferred to the cloud

[4]

- Usage can be increased / decreased and the customer is billed

13 Smart devices and microprocessors can monitor and control devices in the home.

Chapter 5 - The effects of using IT

Describe, giving examples, the negative effects of using these smart devices.

- The device can prevent users from leaving the house
- Use of this device leads to the user becoming lazy
- Using this device the user loses household skills
- The device leads to over reliance
- The device can order items that you do not want
- The device leads to false alarm
- Using this device can affect well-being (mental health)

according to the usage only
- personal lifestyle
- leisure time

- social interaction

- Data Security

Personal Fitness

Labour Saving
devices

- Cookers
other devices

[4]

14 A stylesheet for a website can contain both styles and classes.

(a) Explain the differences between a style and a class.

- a class starts with a full stop / period
- a class is used for adding or changing style within CSS / stylesheet
- classes are subtypes within an element
- classes are user defined whereas a style is pre-defined
- classes are defined in a stylesheet whereas styles are defined in the head section of the web page

[3]

(b) State the web development layer where the stylesheet is used.

Presentation layer

- Chapter 21 - Website Authoring

[1]

15 The audience needs to be considered when creating an ICT solution.

(a) Describe what factors need to be considered for the age of the audience.

- | | | |
|--|---|---|
| <p>older people</p> <ul style="list-style-type: none"> - larger font size - Easy to use interface (touchscreen) - less of technical languages | <p>- Younger Children</p> <ul style="list-style-type: none"> - More pictures than text - Bright, cheerful colours | <p>Older children / Adult</p> <ul style="list-style-type: none"> - Attractive display - A good mixture of text and images - Use of bullet point to make content easier to read |
|--|---|---|

[2]

(b) Describe what factors need to be considered for the interests of the audience.

- The level of knowledge of the user needs to be taken into consideration
- The language used needs to be appropriate
- Respect the audience
- Correct use of video / audio / images
- Content matches their experiences and expectations

[2]

16 (a) State four characteristics of spam emails.

- 1 Unsolicited emails
- Sent in bulk
- 2 Sent by bots
- 3 May have many spelling / grammar errors
- 4 Example - May ask you to click on a link
- May ask you to carry out task immediately

[4]

(b) Give two ways of reducing spam emails.

- 1 Spam filter
 - 2 Don't click on links in the spam e-mail
- Others

- Block the sender's email address
- Don't post your email address on public websites / social media

[2]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.