



Cambridge International AS & A Level

CANDIDATE
NAME

Ajira Ndi

CENTRE
NUMBER

A N O I 7

CANDIDATE
NUMBER

2 0 2 4

INFORMATION TECHNOLOGY

9626/11

Paper 1 Theory

May/June 2024

1 hour 45 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.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages. Any blank pages are indicated.

- 1 (a) Describe, giving an example, what is meant by the term data.

Description..... It has no meaning
 other: Raw which means unprocessed

Example..... 1 or m or 110053

[2]

- (b) Give an example of information and explain why your chosen example is considered to be information.

Examples: Postal codes: 110053, 390072

Reason: Processed data

[2]

Chapter 1: Data Processing and Information

- 2 Identify **four** factors which can affect the quality of information.

1 Accuracy

2 Relevance

3 Age

4 Level of detail

[4]

3 Describe the computer processing involved in an automatic stock control system.

Sale

- Computer reads the barcode number
- Computer searches for this barcode number in the product database
- If the barcode number is found, then number in stock is reduced

Order

- Computer compares the number in stock to the order level
- If the number in stock is not equal to the reorder level another barcode is input
- If the number in stock is equal to the re-order level, the computer creates an order
- The item is flagged to be reordered
- The computer looks up the reorder quantity
- The computer looks up the supplier number
- The computer searches for the record of the supplier
- Computer order automatically

[7]

4 Describe the term indexed sequential access.

- Allows records to be accessed randomly
- Each record is given an index
- Allows records to be accessed in the order they were entered
- Database may have several indexes based on the information required
- It is method of allowing fast retrieval
- Data is organised into records which consists of fixed length fields
- Can be searched quickly

U.I → R.E → K.B
Re

5

Chapter 7 - Expert Systems

5 A bank uses an expert system to help customers with financial planning.

(a) Describe the use of **four** components of an expert system. Your answers **must** relate to financial planning.

1 A user interface : where questions about financial planning appears on the screen

2 Inference Engine : ^{Query} Interrogate the Knowledge base

3 Rule base : holds financial rules

4 Explanation System : describe how the Conclusions were arrived at

[4]

(b) Describe the benefits, to the bank, of using an expert system.

- Saves staff time in writing documentation
- Increase Customer Satisfaction
- Bank expert system, does not need breaks
- Errors are reduced
- Cheaper to copy an expert system than train new staff
- Expert system give better advice than human

[6]

(c) State **three** drawbacks, to the bank, of using an expert system.

- 1 it can lead to loss of customers
- 2 Expert systems cannot apply common sense
- 3 Rule base requires frequent update

[3]

- 6 An airline company uses a flight simulator to train its pilots.

Discuss the advantages and disadvantages of using a flight simulator in this scenario.

Advantages

- Avoids repair costs for aircraft
- The maintenance costs of a flight simulator are less than an actual aircraft
- Events can be simulated without waiting for them to happen in real life
- Can concentrate training on specific controls
- The environment benefits from flight training in a simulator

Disadvantages

- Simulators are not as realistic as a real aircraft
- Pilots get over confident and may compromise safety
- It is difficult to recreate fatigue of a real flight

Other

- Pilot may "freeze" when faced with a real flight

[8]

7 Compilers and linkers are types of system software.

(a) Describe the role of a compiler.

- Translate the whole program as one complete unit
- Creates an executable file
- Translates the program into machine code

[3]

(b) Describe the role of a linker.

- Combines object files that have been created using a compiler
- Can link modules from a common object code into the executable file
- Replaces symbolic addresses with real addresses

[3]

- 8 Create a pseudocode algorithm to allow a number to be entered and to output a result when the number is:

- divided by 4 if it is less than 8
- divided by 8 if it is between 8 and 12 inclusive
- divided by 12 if it is any other number.

Write the pseudocode algorithm using CASE . . . ENDCASE.

INPUT number

CASE number

>12: $X \leftarrow \text{number} / 12$

>8: $X \leftarrow \text{number} / 8$

OTHERWISE: $X \leftarrow \text{number} / 4$

ENDCASE

OUTPUT X

[6]

- 9 A company in Nairobi, Kenya, uses a database to store all its customer details.

Evaluate the use of static and dynamic parameters in a query to search the database for customers in Nairobi, Kenya.

Positive

- Static parameter query is fixed (doesn't change)
- Saves time when running the query
- Less likely to have an error because no user input required
- Dynamic parameter query can be used to search for different values
 - It makes it more flexible
 - Uses a dialogue box for the user to enter the data

Drawback

Static parameter query

- Cannot be changed
- Can end up having a lot of different static queries

Static queries require increased storage space

10 Explain how each of these methods keeps data safe from unauthorised users.

(a) encryption

- Data is Scrambled which makes it not understandable to anyone who intercept it
- Can only be unencrypted with a key
- Use of encryption, known only to authorised user

[3]

(b) a firewall on a network

Chapter 5: e-Safety

- prevent unauthorised access
- Acts as a barrier between internal and external network
- Create alert

[3]

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.