



CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

9626/13

May/June 2022

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

- 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.

- 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 Paulo is carrying out a study on the level of noise caused by traffic in the streets around his home. He will need data for his study.

(a) Describe what is meant by direct data.

.....
..... [1]

(b) Describe how Paulo could use direct data sources for his study.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [4]

- 2 Explain how high level language programs can be translated to run on different computer systems, including any difficulties which may result from this.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- 3 Wei is trying to minimise the effects of malware on her computer system.

Describe the types of software Wei would need and how she could use them to help prevent malware affecting her computer system.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- 4 The directors of a company wish to create a database of customers. They are not sure whether they should ask a computer programmer to produce custom written software or they should purchase off-the-shelf software.

(a) Describe the features of custom written software.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) Describe the features of off-the-shelf software.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- 5 A doctor drives to work. While at work and while travelling, the doctor uses a number of IT-based devices. She uses a dialogue interface to control these devices.

Discuss the advantages and disadvantages of the doctor using a dialogue interface rather than a graphical user interface (GUI).

[8]

6 Describe how the SSL/TLS protocol is used in client-server networks.

[6]

- 7 A company has been asked by a government to construct a nuclear reactor. A computer model will be created before the reactor is built.

Explain why a computer model is needed in this scenario.

[5]

- 8 A microprocessor-controlled car park barrier is used to allow cars to enter a car park. When a car approaches the barrier, the barrier automatically rises to allow the car to enter. It does not lower until the car is safely clear of the barrier system. There is a light sensor and light beam source immediately before the barrier. No tickets are issued by the system. The system operates continuously while it is switched on.

Complete this pseudocode algorithm to describe the processing involved. Your pseudocode algorithm should include IF...THEN statements.

```
REPEAT
    INPUT reading from induction loop
```

[7]

- 9** Insurance consultants have to make decisions about whether or not to accept a customer's application for an insurance policy. They often use expert systems to help them assess the risk involved.
- (a)** Such a system would have a knowledge base, which consists of a database of facts and a rules base.

Describe the other components of this expert system.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- (b)** Explain how this insurance expert system would be used by the consultant and how it would assess the risk.

.....

.....

.....

.....

.....

.....

.....

.....

.....

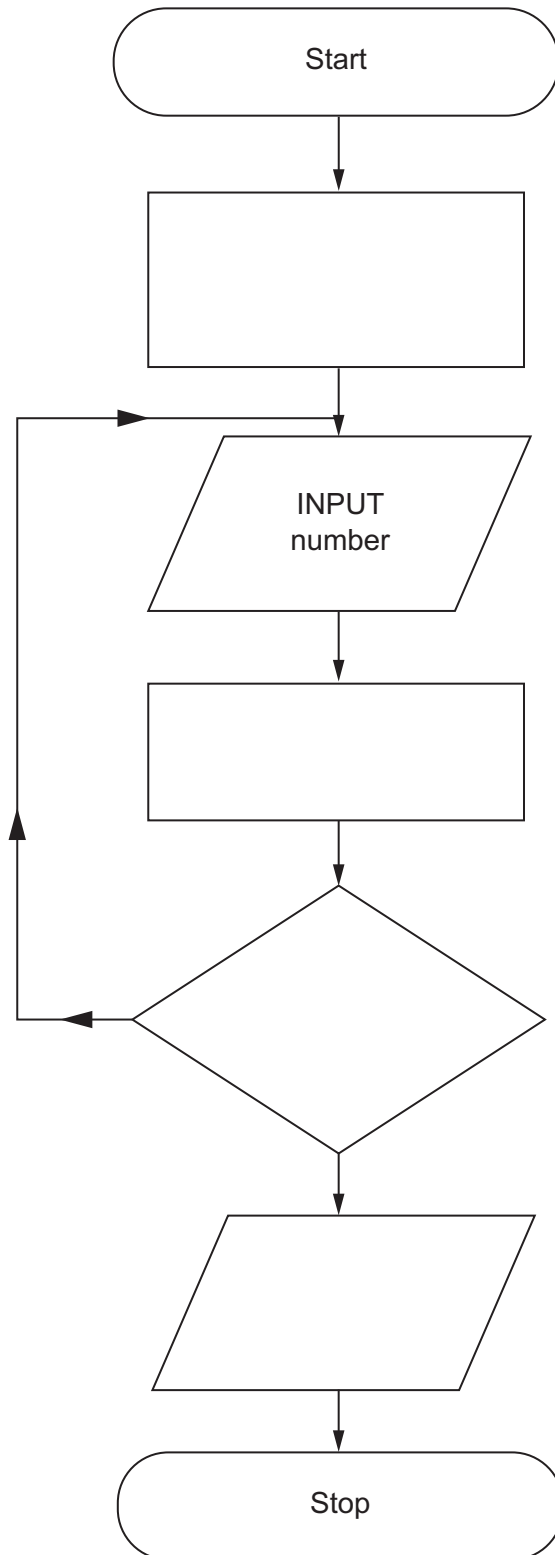
..... [4]

10 Normalisation is used when designing relational databases.

Discuss the advantages and disadvantages of normalisation.

[8]

- 11 Complete the flowchart below to add up 6 numbers.
Use the variable *total* to store the sum of the numbers and the variable *count* to control the number of times the loop is repeated.



[7]

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.