Cambridge International AS & A Level
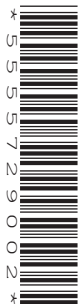
CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **October/November 2022**

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 [ ].

[Turn over

1 Before companies make planning decisions, they need to collect a lot of data. The decisions they make will depend on the quality of the resulting information.

Apart from its age and its level of detail, describe the other factors which affect the quality of information.

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2 A microprocessor controlled air conditioning system uses real-time processing.

Explain what is meant by real-time processing in this scenario.

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3 Back-up software and anti-virus software are both types of utilities that are often provided with operating systems.

(a) Without detailing the different methods of detection, describe the features of anti-virus software.

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(b) Without referring to the different types of back-up, describe the features of back-up software.

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4 Describe what is included in a management information system (MIS).

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5   A delivery company uses an expert system to help produce route schedules for its vehicles.

(a) Without describing its components, explain how an expert system would produce these schedules.

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(b) Explain what is meant by backward chaining.

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6 The IT department manager in a company has decided new software is needed to run the payroll system. She will make a choice between using off-the-shelf software and custom written software. She is already aware that there are differences in the level of support offered and the amount of testing that will have been carried out on the software.

Discuss the other advantages and disadvantages of choosing off-the-shelf software compared to choosing custom written software.

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7   Describe the inputs, processing and outputs in a microprocessor controlled burglar alarm system.

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8 A teacher wishes to produce a computer program to output the grades awarded for **all** of her students.

If a student scores:
- more than 60 marks, they are awarded a grade A
- 50 – 60 marks, they are awarded a grade B
- 40 – 49 marks, they are awarded a grade C
- below 40 marks, they are awarded a grade D.

The teacher has written the following algorithm before writing the program. Unfortunately, there are errors and some lines have been left out (omitted). She has, however, managed to include the correct number of ELSE statements.

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1.    INPUT mark
2.    IF mark > 60
3.      THEN
4.        PRINT "A"
5.      ELSE
6.        IF mark < 50
7.          THEN
8.            PRINT B
9.          ELSE
10.           IF mark >= 40
11.             THEN
12.               PRINT "C"
13.             ELSE
14.               PRINT "D"
15.       ENDIF
16.   ENDIF
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Identify each error or omission and how these could be corrected. Line numbers have been included to help you.

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9 Hackers often use malware to attack the computer networks of large organisations.

Analyse the consequences of this for organisations.

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10 Describe, listing the groups affected, what is meant by the digital divide.

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Please turn over for Question 11.

11 Many companies store the personal data of their workers electronically.

(a) Describe what is meant by the term 'personal data'.

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(b) Describe the methods that could be used to attempt to prevent unauthorised access to this personal data.

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