



## Cambridge International AS & A Level

CANDIDATE  
NAME

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CENTRE  
NUMBER

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**INFORMATION TECHNOLOGY**

**9626/01**

Paper 1 Theory

**For examination from 2022**

SPECIMEN PAPER

**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 **16** pages. Blank pages are indicated.

- 1 The performance of supercomputers and mainframe computers can be measured in a number of ways.

Explain how each of the following is used to measure a computer's performance.

**(a) MIPS**

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..... [2]

**(b) FLOPS**

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..... [2]

**(c) Fault tolerance**

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..... [2]



3 Johann wishes to convert his glasshouse so that a computer controls the amount of light inside it. In the glasshouse he has a light source which is switched on and off by an actuator.

(a) Describe **two** other ways an actuator could be used in a computer-controlled glasshouse.

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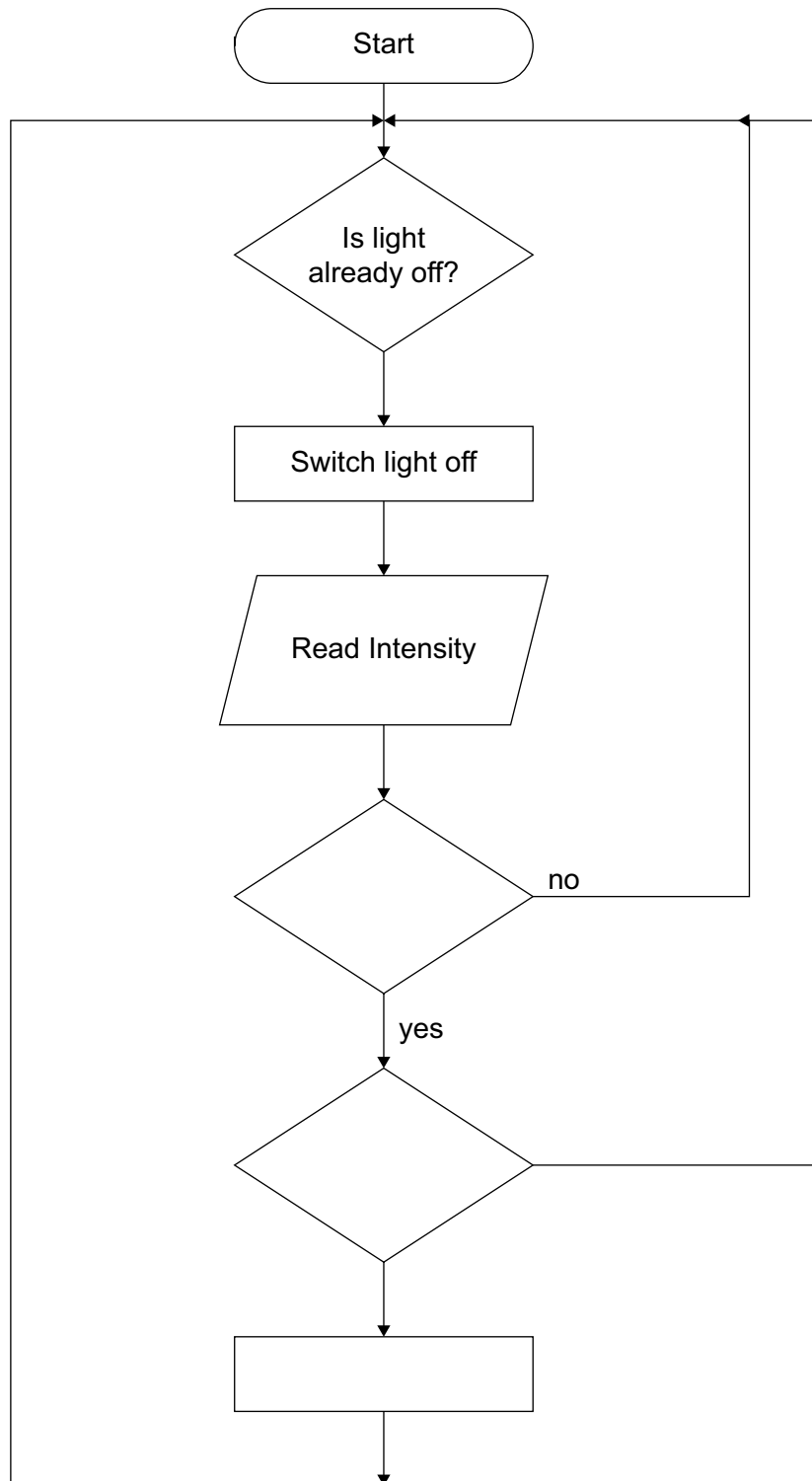
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..... [2]

- (b) If the light intensity falls below 5000 lumens during the day, Johann wishes the light source to come on. If it is above or equal to 5000 lumens it is not necessary to activate the light source. He does not wish the light to come on at night when the light intensity falls below 50 lumens.

Complete the flowchart to show how the light intensity can be controlled continuously.



[6]



5 The digital divide affects many people for many reasons. For example, it exists between people who live in rural areas and people who live in urban areas.

(a) Describe the causes of the digital divide in rural areas compared with urban areas.

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(b) Suggest ways of reducing this divide.

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7 Explain why the following techniques are used when editing video clips.

(a) Trim

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..... [2]

(b) Fading

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8 Describe the main features of the following key fields.

(a) Primary key

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(b) Foreign key

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..... [2]



- 9 Many companies use computers to process their payroll. This involves the updating of a master file.

Every week the master file has to be updated to insert (I) the details of new workers and to delete (D) the details of workers who have left the company. Records also have to be amended (A) if an existing worker's details have changed.

Two tables are shown below. The first represents part of a transaction file containing the type of transaction. The second represents part of the master file used by the company. This shows the workers' ID numbers and the job they do.

**Transaction file**

Transaction	ID number	Job title
A	1569	Picker
D	2378	Checkout
I	3178	Cleaner
D	3576	Checkout
I	3884	Driver

**Master File**

ID number	Department
1012	Picker
1569	Checkout
2378	Checkout
2856	Driver
3276	Driver
3576	Checkout
3789	Picker
4109	Picker
4238	Driver

- (a) Including the use of nested IF THEN statements, complete the following algorithm which shows the process of updating the master file.

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Read first record in transaction file
Read first record in old master file
WHILE not end of transaction file DO
    IF transaction file ID number = master file ID number THEN
    
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..... [6]

(b) Payroll is an example of batch processing.

Explain why batch processing is preferred to online processing for this task.

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..... [4]

- 10 The owner of a number of supermarkets wants to introduce a new computer system. When considering which software to use he will choose between custom written software and off-the-shelf-software.

Describe **four** differences between custom written software and off-the-shelf software.

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



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