



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**COMPUTER SCIENCE**

**0478/21**

Paper 2 Problem-solving and Programming

**May/June 2018**

PRE-RELEASE MATERIAL

No Additional Materials are required.

**This material should be given to the relevant teachers and candidates as soon as it has been received at the Centre.**

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**READ THESE INSTRUCTIONS FIRST**

Candidates should use this material in preparation for the examination. Candidates should attempt the practical programming tasks using their chosen high-level, procedural programming language.



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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **2** printed pages.

In preparation for the examination candidates should attempt the following practical tasks by **writing and testing a program or programs**.

A computer shop will build a computer from components to meet a customer's requirements. For each request for a computer to be built, an estimate of the cost is produced. The component stock level is checked; if all the components are in stock, a firm order to build the computer can be placed. A program is required to work out the cost of the computer, update the stock levels and provide a daily summary of orders for the shop owner.

Write and test a program or programs for the computer shop owner.

- Your program or programs must include appropriate prompts for the entry of data.
- Error messages and other output need to be set out clearly and understandably.
- All variables, constants and other identifiers must have meaningful names.

You will need to complete these **three** tasks. Each task must be fully tested.

TASK 1 – Produce an estimate.

Write a program for TASK 1 to calculate the cost of building a computer using these components:

| Component | Choices                 | Prices in \$    |
|-----------|-------------------------|-----------------|
| Processor | p3 / p5 / p7            | 100 / 120 / 200 |
| RAM       | 16GB / 32GB             | 75 / 150        |
| Storage   | 1TB / 2TB               | 50 / 100        |
| Screen    | 19" / 23"               | 65 / 120        |
| Case      | Mini Tower / Midi Tower | 40 / 70         |
| USB ports | 2 ports / 4 ports       | 10 / 20         |

The customer makes a choice for each component and an estimate is produced. The estimate must show a unique estimate number, the components chosen and the price of each component. The estimate must also show the total cost of the computer, which is calculated as the sum of the cost of the components chosen plus 20%.

TASK 2 – Place an order.

Using your estimate from TASK 1, check if the components required are in stock. If all the components are in stock then update the stock levels. Add the unique estimate number to the list of order numbers. Add the customer's details and today's date to the estimate details to finalise the order. Print two copies of the order, one for the customer and one for the shop.

TASK 3 – Summarise the day's orders.

Extend TASK 2 to provide an end of day summary showing the number of orders made, the total number of each component sold and the value of the orders.

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