



Cambridge IGCSE™

COMPUTER SCIENCE

0478/22

Paper 2 Problem-solving and Programming

October/November 2020

PRE-RELEASE MATERIAL

No additional materials are needed.

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

INSTRUCTIONS

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

This document has **2** pages. Blank pages are indicated.

Your preparation for the examination should include attempting the following practical tasks by **writing and testing a program or programs**.

An online computer shop sells customised personal computers. Every computer sold includes a basic set of components costing \$200 and additional items can be added from the table:

| Category | Item code | Description | Price (\$) |
|------------------------|-----------|-----------------------|------------|
| Case | A1 | Compact | 75.00 |
| Case | A2 | Tower | 150.00 |
| RAM | B1 | 8 GB | 79.99 |
| RAM | B2 | 16 GB | 149.99 |
| RAM | B3 | 32 GB | 299.99 |
| Main Hard Disk Drive | C1 | 1 TB HDD | 49.99 |
| Main Hard Disk Drive | C2 | 2 TB HDD | 89.99 |
| Main Hard Disk Drive | C3 | 4 TB HDD | 129.99 |
| Solid State Drive | D1 | 240 GB SSD | 59.99 |
| Solid State Drive | D2 | 480 GB SSD | 119.99 |
| Second Hard Disk Drive | E1 | 1 TB HDD | 49.99 |
| Second Hard Disk Drive | E2 | 2 TB HDD | 89.99 |
| Second Hard Disk Drive | E3 | 4 TB HDD | 129.99 |
| Optical Drive | F1 | DVD/Blu-Ray Player | 50.00 |
| Optical Drive | F2 | DVD/Blu-Ray Re-writer | 100.00 |
| Operating System | G1 | Standard Version | 100.00 |
| Operating System | G2 | Professional Version | 175.00 |

As well as the basic set of components every computer must include one case, one RAM and one Main Hard Disk Drive from the table.

A computer is supplied with or without an Operating System.

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

- Your program or programs must include appropriate prompts for the entry of data; data must be validated on entry.
- Error messages and other output need to be set out clearly and understandably.
- All arrays, 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 – Setting up the system and ordering the main items.

Write a program to:

- use arrays to store the item code, description and price
- allow a customer to choose one case, one RAM and one Main Hard Disk Drive
- calculate the price of the computer using the cost of the chosen items and the basic set of components
- store and output the chosen items and the price of the computer.

Task 2 – Ordering additional items.

Extend TASK 1 to:

- allow a customer to choose whether to purchase any items from the other categories – if so, which item(s)
- update the price of the computer
- store and output the additional items and the new price of the computer.

Task 3 – Offering discounts.

Extend TASK 2 to:

- apply a 5% discount to the price of the computer if the customer has bought only one additional item
- apply a 10% discount to the price of the computer if the customer has bought two or more additional items
- output the amount of money saved and the new price of the computer after the discount.

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