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**COMPUTER SCIENCE**

**0478/22**

Paper 2 Problem-solving and Programming

**October/November 2016**

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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The 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(s)**.

The manager of a supermarket needs a program to record donations to charity. Each customer has the choice of three charities to donate to, and 1% of their shopping bill will be donated to the chosen charity.

Write and test a program for the manager.

- Your program must include appropriate prompts for the entry of data.
- Error messages and other output need to be set out clearly.
- 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 – Set up the donation system

Set up a routine that allows:

- the names of three charities to be input and stored
- the charity names to be displayed with a number (1, 2 or 3) beside each name
- a choice of 1, 2 or 3 to be entered to choose the charity, all other entries rejected
- the value of a customer's shopping bill to be entered
- the donation to be calculated
- three totals to be set to zero ready to total each charity donation

#### TASK 2 – Record and total each donation

For a customer's shopping bill:

- input a charity choice of 1, 2 or 3
- input the value of a customer's shopping bill
- calculate the donation
- add the donation to the appropriate total

Output the name of the charity and the amount donated.

#### TASK 3 – Show the totals so far

Extend TASK 2 to accept:

- donations from more customers
- a charity choice of -1 to show the totals so far

Display the charities' names and the totals in descending order of totals.

Calculate a grand total of all three totals.

Output 'GRAND TOTAL DONATED TO CHARITY' and the amount of the grand total.

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