CAMBRIDGE ASSESSMENT INTERNATIONAL EDUCATION
Cambridge ICT Starters

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

ON TRACK **4293/B**

Stage 2: Programming for a Purpose **For moderation from 2019**

Maximum time allowed: 1 hour 30 minutes

Additional materials: MyPrograms_4293B.doc
Flowcharting software (optional)

READ THESE INSTRUCTIONS FIRST

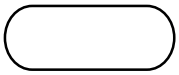
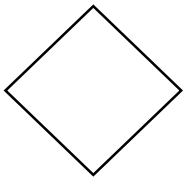
Write your Centre number, candidate number and name on all the work you hand in.

For Tutor Use		
Programming for a Purpose		
Candidate was able to:	**Pass/ Merit**	**Please tick**
Plan an interactive program using abstraction.	P	
Create and test an interactive program using selection, input and output.	P	
Predict the output of an interactive program that uses input and selection.	P	
Create and formally test an interactive program using selection, input and output.	M	
Correct (debug) a short interactive program containing more than one error.	M	
Tutors also need to complete and sign the Learning Objectives Record Sheet for each Candidate.		

This document consists of **10** pages. Blank pages are indicated.

On Track – Stage 2 – Programming for a Purpose

Flowchart symbol key:

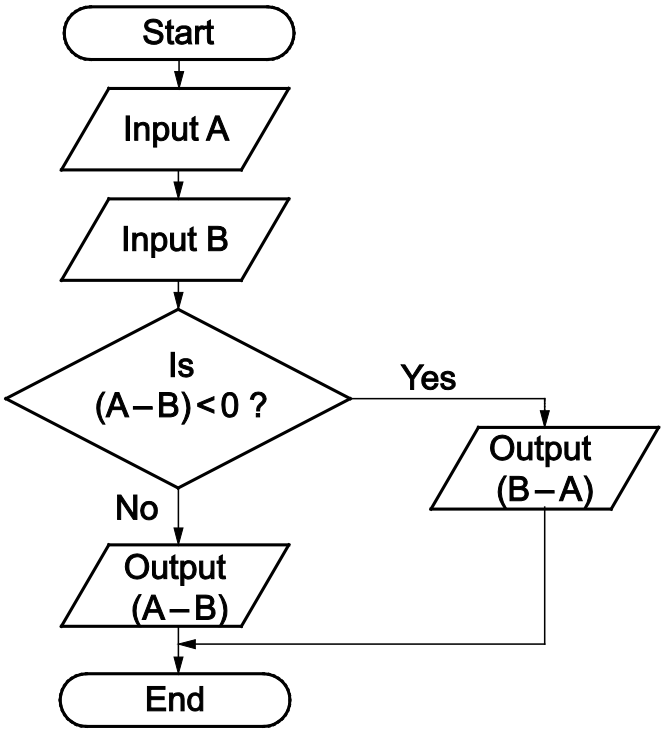
Symbol	Name	Description
	Terminator	Shows the start and end of a process
	Data	Shows inputs and outputs
	Decision	Shows a decision that branches a process
	Connector	Connects up the process
	Process	Shows a step in the process
	Procedure	Shows a named set of instructions which perform a specific process

Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

Section A

1 The flowchart below shows a program which uses selection, input and output.



The program is run **four** times and new inputs are added each time.

Complete the table to predict what the output would be from this program if the following values were input.

Input A	Input B	Output
4	5	
7	3	
–4	3	
8	8	

(LO3)

Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

2 A computer game picks a random number between 1 and 100, and asks the player to guess what the number is.

If the player makes a correct guess, the game congratulates them, and stops.

If the player does **not** make a correct guess, the game tells the player that their guess is either too high, or too low.

If the player guesses with an answer that is **not** a number between 1 and 100, an error message is displayed. The game continues to give the player chances to guess, until the player guesses correctly.

You are going to plan an interactive program to implement this game.

(a) What input(s) will be needed?

(b) What output(s) will be needed?

(c) Create a flowchart to show how the program would function. You may draw your flowchart by hand, or use software.

(d) Write your name on your flowchart if you have drawn it by hand. If you have used software, take a screenshot (print screen) of your flowchart and *paste* it into **MyPrograms_4293B.doc** (LO1)

Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

3 Implement the program using an appropriate language.

4 When your program is complete, *save* your work as **<YourName>1**

5 You are going to test your program using a test table.

(a) Complete the test table below to show the output of your program using normal values.

Test	Input	Expected Output	Actual Output

(b) Take screenshot(s) (print screen) showing your code and output using normal values. *Paste* your screenshot(s) into **MyPrograms_4293B.doc**

(LO2)

Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

Section B

1 **(a)** Complete the test table below to show the output of your program from question **4** using extreme and erroneous values.

Test	Input	Expected Output	Actual Output

(b) Take screenshot(s) (print screen) showing your code and output using extreme and erroneous values. *Paste* your screenshot(s) into **MyPrograms_4293B.doc**

(LO4)

Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

BLANK PAGE

Centre number		Candidate number		Candidate name	

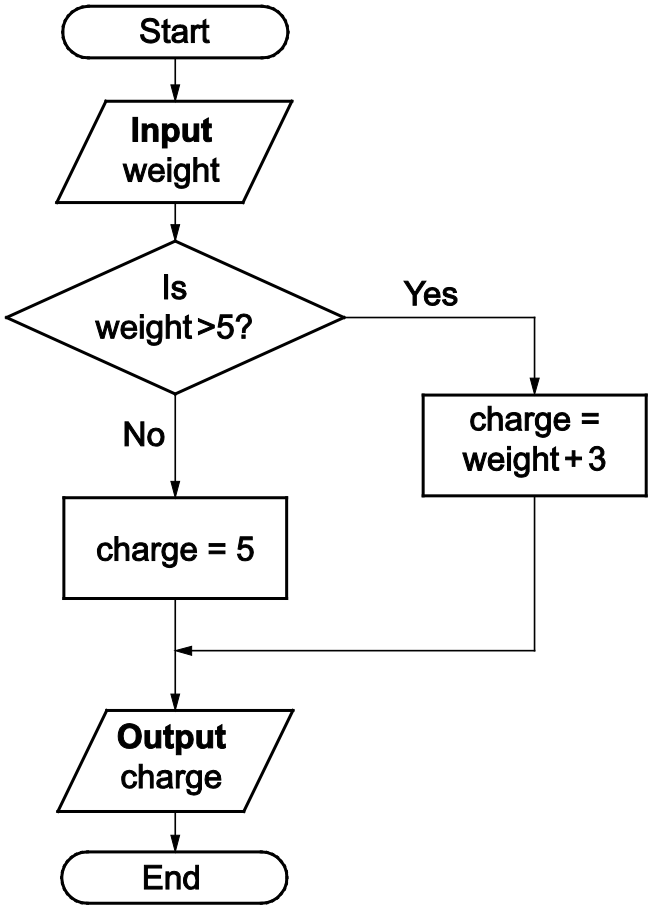
On Track – Stage 2 – Programming for a Purpose

2 A postal company charges \$10 to deliver packages that weigh 5kg or less.
If a package weighs over 5 kg, the company charges \$3 per kg.

For example, the delivery charge for a:

- 3 kg package is \$10
- 5 kg package is \$10
- 6 kg package is \$18 (6 kg × \$3).

The postal company writes the interactive program below to calculate the delivery charge for a package. All weights are in kg and all charges are in dollars (\$).



Centre number		Candidate number		Candidate name	

On Track – Stage 2 – Programming for a Purpose

The program contains **two** errors.
Identify these errors and explain how each error can be corrected.

(LO5)

BLANK PAGE