Chhetri Academy

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GCSE COMPUTER SCIENCE

1.1

Edexcel 1CP2 | Specification point 1.1.2

The benefits of using subprograms

Untiered

Past paper question booklet

1	2024	Untiered
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

1 Computational thinking

(a) Identify the term that means breaking a problem or solution down into smaller parts.

(1)

- ☒ **A** Abstraction
- ☒ **B** Computation
- ☒ **C** Decomposition
- ☒ **D** Evaluation

(b) State **two benefits** of subprograms.

(2)

1 .....

.....

2 .....

.....

(c) Here is an algorithm that uses colours.

```
1  # --------------------------------------------------------
2  # Global variables
3  # --------------------------------------------------------
4  theColours = ["Green", "Blue", "Yellow", "Red", "Purple"]
5  colour = ""
6
7  # --------------------------------------------------------
8  # Main program
9  # --------------------------------------------------------
10
11 for item in theColours:
12     print (item)
13
14 colour = input ("Enter a colour: ")
15 while (colour != ""):
16     if (colour == "Green"):
17         print ("Green is my favourite colour")
18     else:
19         print (colour + " is a good colour")
20
21     colour = input ("Enter a colour: ")
```

(i) Give the first line number of a condition-controlled loop.

(1)

(ii) Give the first line number of iteration over every item in a data structure.

(1)

(iii) Give the line numbers of a selection.

(1)

(d) Programs can have syntax errors and runtime errors.

(i) Define the term 'syntax error'.

(1)

(ii) Runtime errors happen when a program is executing.

Explain a runtime error.

(2)

(e) Algorithms use relational and arithmetic operators.

(i) Here is a relational operator used in a conditional test.

```
count > index
```

State the **two** different results of evaluating a conditional test.

(2)

1 .....

2 .....

(ii) Identify the result of 5 // 2

(1)

- ☒ **A** 0.5
- ☒ **B** 1
- ☒ **C** 2
- ☒ **D** 2.5

(f) Programmers consider algorithm efficiency when they write code.

(i) Sorting and searching use algorithms.

Complete the table with the name of a search algorithm and a sort algorithm.

(2)

Algorithm type	Characteristic	Algorithm name
Search	Is a divide and conquer algorithm	
Sort	Is **not** a divide and conquer algorithm	

(ii) Explain **one** effect the number of comparisons has on the execution time of a sorting algorithm.

(2)

.....

.....

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(Total for Question 1 = 16 marks)