Chhetri Academy

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GCSE COMPUTER SCIENCE

1.2

Edexcel 1CP2 | Specification point 1.2.5

Types of errors that can occur in programs (syntax, logic, runtime) and be able to identify and correct...

Untiered

Past paper question booklet

2	2019-2024	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.

5 Errors are revealed when program code is translated and executed.

(a) Here is an error that a programmer received when writing and testing some code.



Explain this type of error.

(2)

(b) Margaret is having a new decorative banner fitted around her kiosk. The kiosk is a rectangle 5 metres long and 3 metres wide. The door and serving window take up one of the shorter sides, so it does not need the banner.

The pseudocode for an algorithm that determines the length of banner needed is shown.

```
2 SEND "Enter length: " TO DISPLAY
3 RECEIVE length FROM (INTEGER) KEYBOARD
4 SEND "Enter width: " TO DISPLAY
5 RECEIVE width FROM (INTEGER) KEYBOARD
6 SET totalWidth TO 2 * width
7 SET totalLength TO 2 * length
8 SET total TO totalWidth * totalLength
9 SEND "The amount needed is: " & total TO DISPLAY
```

Line 6 and line 8 have logic errors.

Identify the error in each line and construct new lines of code that will correct the errors.

(4)

	Error	Correction
Line 6		
Line 8		

(Total for Question 5 = 6 marks)

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)