Chhetri Academy

chhetriacademy.com

GCSE COMPUTER SCIENCE

2.3

OCR J277 | Specification point 2.3.2

Testing

Untiered

Past paper question booklet

3	2017-2025	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.

3 An algorithm is written that finds the mean average (i.e. the total of the numbers divided by how many numbers there are) of a set of 10 numbers stored in an array `NumberArray`.

```
const Quantity = 10
for Count = 0 to Quantity
    Total = Total + NumberArray(.....................)
next Count
Mean = ..........................................
output Mean
```

(a) Complete the algorithm by adding the missing pseudocode statements. **[2]**

(b) Define the term constant, giving an example from the algorithm.

Definition .....

.....

.....

.....

Example.....

[3]

(c) Identify the most appropriate data type for `Mean`. Justify your choice.

Data type .....

Justification .....

.....

[2]

(d) The algorithm uses iteration.

(i) Describe what is meant by iteration.

.....

.....

.....

..... **[2]**

(ii) Identify **two** forms of iteration that are **not** used in this algorithm.

1 .....

2 .....

[2]

© OCR 2017

(e) The program is being extended to ask the user to enter numbers into the array. An algorithm is written to check that the input is valid.

```
do
    input Number
until Number >= 0 AND Number <= 100
```

State **one** item of borderline data and **one** item of invalid data that can be input to test the algorithm works correctly.

Borderline .....

Invalid .....

[2]

© OCR 2017

Turn over

5 Charlie is developing an adding game. The rules of the game are:

- the player is asked 3 addition questions
- each question asks the player to add together two random whole numbers between 1 and 10 inclusive
- if the player gets the correct answer, 1 is added to their score
- at the end of the game their score is displayed.

(a) Charlie has been told that the game will need to be tested before giving it to the players.

(i) Explain why programs should be tested before use.

.....

.....

.....

..... **[2]**

(ii) Complete the table by naming and describing **one** type of test that should be used on Charlie's program before releasing it.

Test type	Description

[2]

(iii) Complete the table by identifying **and** describing **two** features of an IDE that can be used when testing a program.

Feature	Description

[4]

(b) Validating inputs can reduce errors when a program is being run.

Identify **two** methods of validation **and** explain how they can be used on this game.

Validation method 1 .....

Use .....

.....

.....

.....

Validation method 2 .....

Use .....

.....

.....

.....

[6]

© OCR 2023

(c) Write an algorithm to play this game. The rules are repeated from the start of the question here:

- the player is asked 3 addition questions
- each question asks the player to add together two random whole numbers between 1 and 10 inclusive
- if the player gets the correct answer, 1 is added to their score
- at the end of the game their score is displayed.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... **[6]**

SECTION B

We advise you to spend at least 40 minutes on this section.

Some questions require you to respond using either the OCR Exam Reference Language or a high-level programming language you have studied. These are clearly shown.

1 A program asks a user to enter a number. Only integer values between 1 and 100 (inclusive) are accepted. The program is tested.

(a) Tick (✓) **one or more** boxes in each row to identify the type or types of test for each example of test data.

Example test data	Normal test data	Boundary test data	Invalid / erroneous test data
27			
"Hello"			
105			
100			

[4]

(b) An algorithm is written for the program.

(i) Complete the algorithm for the program.

```
num = input("Enter a number between 1 and 100")

if num ..... AND ..... then
      print("accepted")
.....
      print("not accepted")
endif
```

[3]

(ii) Give the identifier of **one** variable used in the algorithm in part **(b)(i)**.

..... **[1]**

(iii) Give **one** Boolean operator used in the algorithm in part **(b)(i)**.

..... **[1]**

© OCR 2025