

# Oxford Revise | OCR Computer Science | Answers

## Chapter 22 Iteration (loop structures)

Question	Answer	Extra information	Marks	AO / Specification reference
1	<pre>total = 0 for i = 1 to 100     number = input("Input a positive number")     total = total + number next i print("The total is " + total) print("The average is " + total / 100)</pre>	<p>Marking points:</p> <ul style="list-style-type: none"> <li>• Appropriate loop structure to allow 100 iterations (the example shown uses exam reference language, in Python this line would be 'for i in range(100):')</li> <li>• Input of a number inside the loop (if using Python, also convert the data type)</li> <li>• Totalling the numbers inside the loop</li> <li>• Initialising the totalling variable before the loop</li> <li>• Outputting the total after the loop</li> <li>• Calculation and output of average (outside the loop).</li> </ul> <p>Note: it is good practise to initialise totalling or counting variables before they are used for the first time.</p> <p>No identifier names have been given in this question so any appropriate names are acceptable.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>A03</p> <p>2.2.1</p> <p>2.3.1</p>

Question	Answer	Extra information	Marks	AO / Specification reference
2	<pre>total = 0 number = input("Input a positive number") while number != -1     total = total + number     number = input("Input a positive number") endwhile print("The total is " + total) numbers print("The average is " + total / 100)</pre>	<p>Marking points:</p> <ul style="list-style-type: none"> <li>• Correct use of condition-controlled loop</li> <li>• Testing for an input of -1</li> <li>• Input of numbers (pre-condition loop requires the first number to be input before the loop, post-condition loop requires all the inputs to be inside the loop)</li> <li>• Totalling the numbers inside the loop (pre-condition loop requires the totalling statement to be before the input, post-condition loop requires it to be after the input)</li> <li>• Initialising the totalling variable before the loop and outputting the total after the loop</li> </ul> <p>Calculation and output of average (outside the loop).</p>	<p>1 1 1 1 1 1</p>	<p>AO3 2.2.1</p>

Question	Answer	Extra information	Marks	AO / Specification reference
3	<pre> graph TD     Start([START]) --&gt; Input[/input number/]     Input --&gt; Decision{Number &lt; 100}     Decision -- No --&gt; OutputNo[/output "The number must be less than 100, please try again"/]     OutputNo --&gt; Input     Decision -- Yes --&gt; OutputYes[/output "The number is accepted"/]     OutputYes --&gt; End([END])         </pre>	<p>Marking points:</p> <ul style="list-style-type: none"> <li>• Start, End, and all boxes connected together</li> <li>• Correct input</li> <li>• Correct decision box and content, with true or false routes identified</li> <li>• Correct output for false input, with path to re-entry of input</li> <li>• Correct output for true input.</li> </ul> <p>Note: the output messages are examples. Other messages with the same meaning are also acceptable.</p>	<p>1 1 1 1 1</p>	<p>A03 2.2.1</p>