# Answers to Questions from TT5.1

Name:

Student ID:

1: List the actions the computer executes when it runs the following code.

for i := 0 to 3 do

begin

WriteLn('i is ', i);

end;

|  |  |  |
| --- | --- | --- |
| Sequence | Action | Note |
| 1 | Assigns i the value 0 | i is now 0 |
| 2 | Checks if i <= 3 | Condition is true. |
| 3 | Jumps into loop body |  |
| 4 | Calls WriteLn with ‘i is’ and value of i | Value of i is 0 |
| 5 | Increments the value of i (i := i + 1) | i is now 1 |
| 6 | Jumps back to condition |  |
| 7 | Checks if i <= 3 |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |
| 21 |  |  |
| 22 |  |  |
| 23 | Jumps to end of loop |  |

2: List the actions the computer executes when it runs the following code.

for i := 3 downto 0 do

begin

WriteLn('i is ', i);

end;

|  |  |  |
| --- | --- | --- |
| Sequence | Action | Note |
| 1 | Assigns i the value 3 | i is now 3 |
| 2 | Checks if i >= 0 | Condition is true. |
| 3 | Jumps into loop body |  |
| 4 | Calls WriteLn with ‘i is’ and value of i | Value of i is 3 |
| 5 | Decrements the value of i (i := i - 1) | i is now 2 |
| 6 | Jumps back to condition |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |
| 21 |  |  |
| 22 |  |  |
| 23 | Jumps to end of loop |  |

## 3: List the actions the computer executes when it runs the following code.

names array [0..2] of String:

|  |  |
| --- | --- |
| **Index** | **Value** |
| **0** | Jasper |
| **1** | Sam |
| **2** | Milly |

WriteLn('Array of ', Length(names), ' values');

for i := 0 to High(names) do

begin

WriteLn(names[i]);

end;

|  |  |  |
| --- | --- | --- |
| Sequence | Action | Note |
| 1 | Writes length of the array is ??? |  |
| 2 | Assigns i the value 0 | i now 0 |
| 3 | Checks if i <= High(names) so is i <= 2 | Condition is true |
| 4 | Jumps into loop body |  |
| 5 | Reads value of i | Gets 0 |
| 6 | Writes value names [ 0 ] | Writes Jasper |
| 7 | Increments the value of i (i := i + 1) | i is now 1 |
| 8 | Jumps back to condition |  |
| 9 | Checks if i <= 2 ( High(names) ) |  |
| 10 | Jumps into loop body |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 | Jumps back to condition |  |
| 15 | Checks if i <= 2 ( High(names) ) |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |
| 21 | Checks if i <= 2 ( High(names) ) |  |
| 22 | Jumps to end of loop |  |

## 4: What will be output when the computer runs the following code:

type Score = record

name: String;

score: Integer;

end;

scores: array [0..2] of Score;

|  |  |
| --- | --- |
| **Index** | **Value** |
| **0** | **Name:** Jasper  **Score:** 5 |
| **1** | **Name:** Sam **Score:** 10 |
| **2** | **Name:** Milly **Score:** 12 |

procedure WriteScore(const toWrite: Score);

begin

WriteLn(toWrite.name, ' scored ', toWrite.score);

end;

What will be output when the computer runs the following code:

WriteLn( 'Message 0' );

WriteLn( scores[1].Name );

WriteLn();

WriteLn( 'Message 1' );

for i := 0 to High(scores) do

begin

WriteLn( scores[i].Name );

end;

WriteLn();

WriteLn( 'Message 2' );

for i := 0 to High(scores) do

begin

WriteScore(scores[i]);

end;

(Output on next page)

**Output:**

Message 0

…