



National  
Qualifications  
SPECIMEN ONLY

**S816/75/01**

**Computing Science**

## Marking Instructions

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These marking instructions have been provided to show how SQA would mark this specimen question paper.

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## General marking principles for National 5 Computing Science

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this paper. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.

- (a) Marks for each candidate response must **always** be assigned in line with these general marking principles and the detailed marking instructions for this assessment.
- (b) Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

Marking instructions for each question

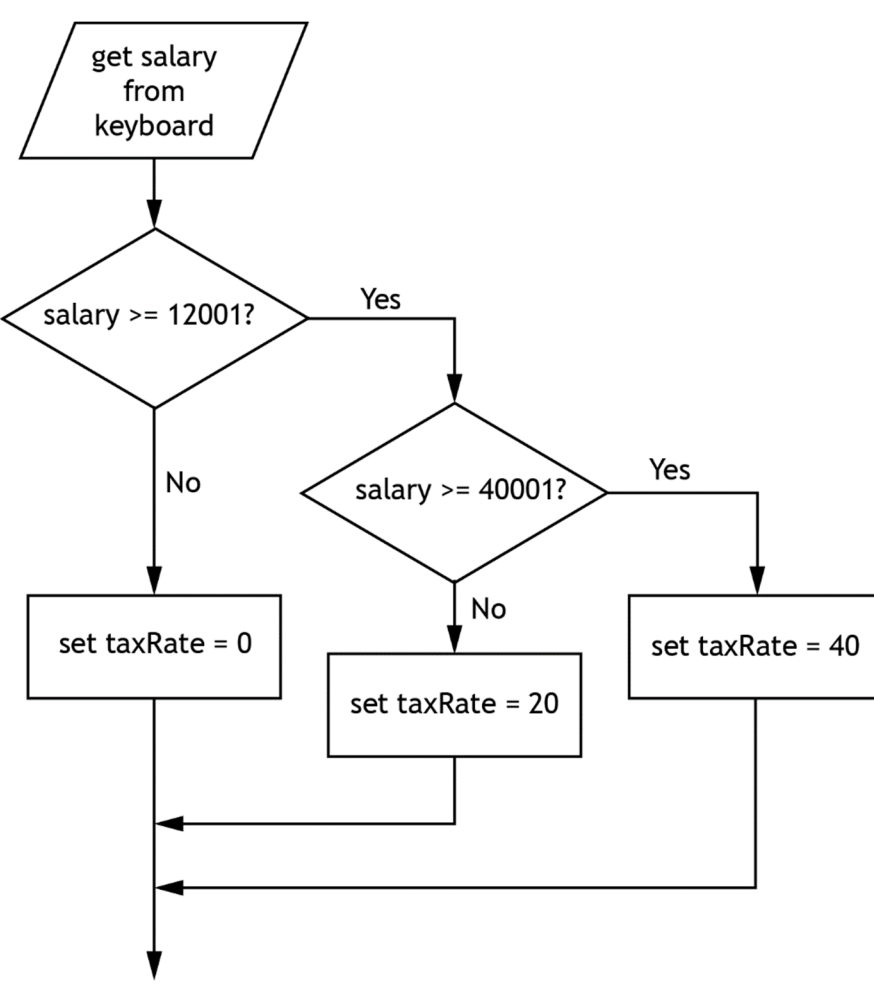
SECTION 1

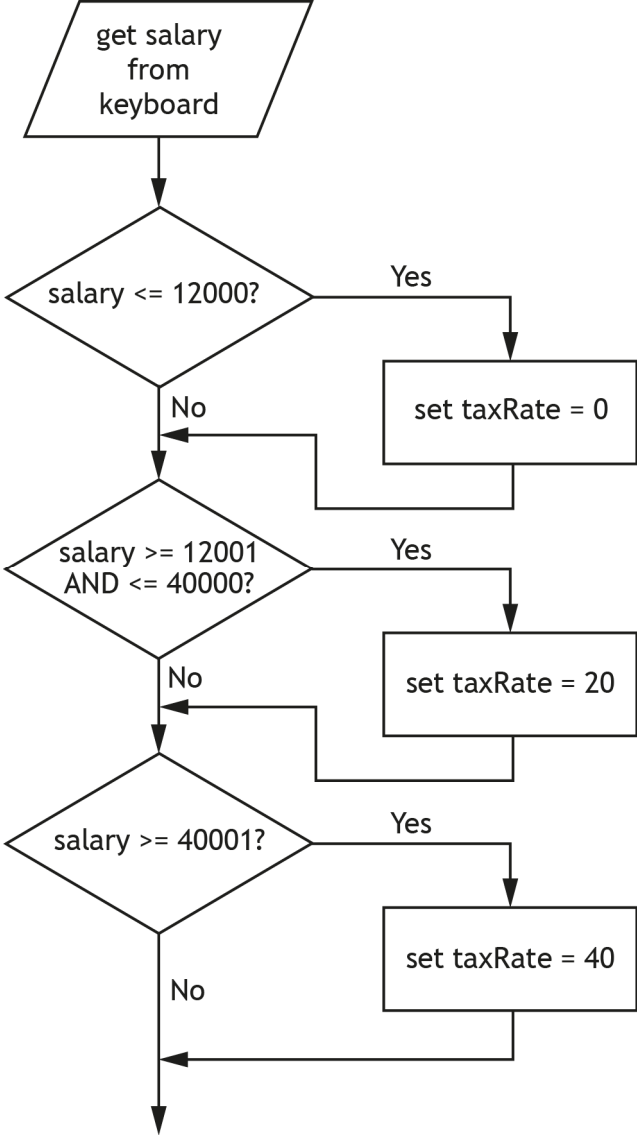
Question			Expected response	Max mark	Additional guidance
1.			183	1	
2.			To correct errors	1	Also accept 'to add additional code'
3.			Any <b>two</b> from: <ul style="list-style-type: none"> <li>• data must be kept accurate</li> <li>• data must be safe and secure</li> <li>• data can only be used for specifically stated purposes</li> </ul>	2	
4.			One mark each for: <ul style="list-style-type: none"> <li>• compares 83 to 70</li> <li>• doesn't enter loop (because condition is false)</li> <li>• sends signal to alarm</li> </ul>	3	
5.	(a)		Restricts access to a network	1	
	(b)		Data is coded/unreadable	1	
6.			One mark each for: <ul style="list-style-type: none"> <li>• control character example</li> <li>• printable character example</li> </ul> <p><b>Example responses for 6:</b></p> <ul style="list-style-type: none"> <li>• 'Start of Text', 'Escape', 'Delete' or any other character from 0-13 of ASCII code</li> <li>• A-Z, a-z, 0-9, punctuation or any visible character</li> </ul>	2	
7.			Either <b>one</b> from: <ul style="list-style-type: none"> <li>• to show the intended user interface to client</li> <li>• it allows end-users to get the look and feel of a website</li> </ul>	1	

Question		Expected response	Max mark	Additional guidance
8.	(a)	Ellipse	1	
	(b)	Any <b>two</b> from: <ul style="list-style-type: none"> <li>• co-ordinates</li> <li>• fill colour</li> <li>• line colour</li> </ul>	2	Any other appropriate attribute
9.	(a)	Restricted choice	1	
	(b)	Either <b>one</b> from: <ul style="list-style-type: none"> <li>• eliminates input errors</li> <li>• users are presented with the only options</li> </ul>	1	
10.		<b>One</b> advantage from: <ul style="list-style-type: none"> <li>• MP3 file takes up less memory</li> <li>• MP3 file can be uploaded quickly</li> </ul> <b>One</b> disadvantage: <ul style="list-style-type: none"> <li>• sound quality poorer</li> </ul>	2	
11.		Any <b>two</b> from: <ul style="list-style-type: none"> <li>• set computers to go into sleep mode after a period of inactivity</li> <li>• reduce monitor settings</li> <li>• activate hard disk shut down settings</li> </ul>	2	
12.		Mantissa – 195 Exponent – 3	2	Also award marks if either answer is converted to binary
13.		One mark each for: <ul style="list-style-type: none"> <li>• internal hyperlink – links to a page within the same website/domain)</li> <li>• external hyperlink – links to page/document in another website/domain</li> </ul>	2	

SECTION 2

Question		Expected response	Max mark	Additional guidance
14.	(a)	Password = 'Bingo' OR attempts = 3  One mark each for: <ul style="list-style-type: none"> <li>• Password = 'Bingo'</li> <li>• OR</li> <li>• attempts = 3</li> </ul>	3	
	(b)	String	1	
	(c)	FOR eachDay FROM 1 TO 7 DO RECEIVE wage[eachDay] FROM KEYBOARD SET totalWage TO totalWage + wage[eachday] END FOR SET weeklyAverage TO totalWage / 7  One mark each for: <ul style="list-style-type: none"> <li>• fixed loop</li> <li>• input</li> <li>• running total</li> <li>• divide by 7 for average outside loop</li> <li>• use of array</li> </ul>	5	Only mark constructs, as answer does not need to be syntactically accurate.
15.	(a)	One mark each for: <ul style="list-style-type: none"> <li>• a picture of the two golfers (with file type)</li> <li>• text about the golf competition</li> <li>• a video of the interview (with file type)</li> </ul>	3	
	(b)	Marks awarded as noted below:  <pre>p (1) { font-size: 10px; (1)         font-family: "Helvetica"; (1)         text-align: left; (1)       }</pre>	4	Syntax <b>must</b> be accurate, as an example has already been given in the question.
	(c)	Any <b>two</b> from: <ul style="list-style-type: none"> <li>• links work</li> <li>• graphic/text display correctly</li> <li>• styling is correct</li> <li>• consistency across pages</li> </ul>	2	
16.	(a)	One mark each for: <ul style="list-style-type: none"> <li>• input – salary</li> <li>• process – decide which tax rate based on salary</li> <li>• output – tax rate</li> </ul>	3	

Question		Expected response	Max mark	Additional guidance
16.	(b)	<p>One mark each for:</p> <ul style="list-style-type: none"> <li>• selection constructs</li> <li>• conditions correct</li> <li>• tax rate assigned</li> <li>• efficient solution</li> </ul> <p>Expected flowchart response for 16(b):</p>  <pre> graph TD     Start[/get salary from keyboard/] --&gt; D1{salary &gt;= 12001?}     D1 -- No --&gt; P1[set taxRate = 0]     D1 -- Yes --&gt; D2{salary &gt;= 40001?}     D2 -- No --&gt; P2[set taxRate = 20]     D2 -- Yes --&gt; P3[set taxRate = 40]     P1 --&gt; Exit(( ))     P2 --&gt; Exit     P3 --&gt; Exit   </pre>	4	

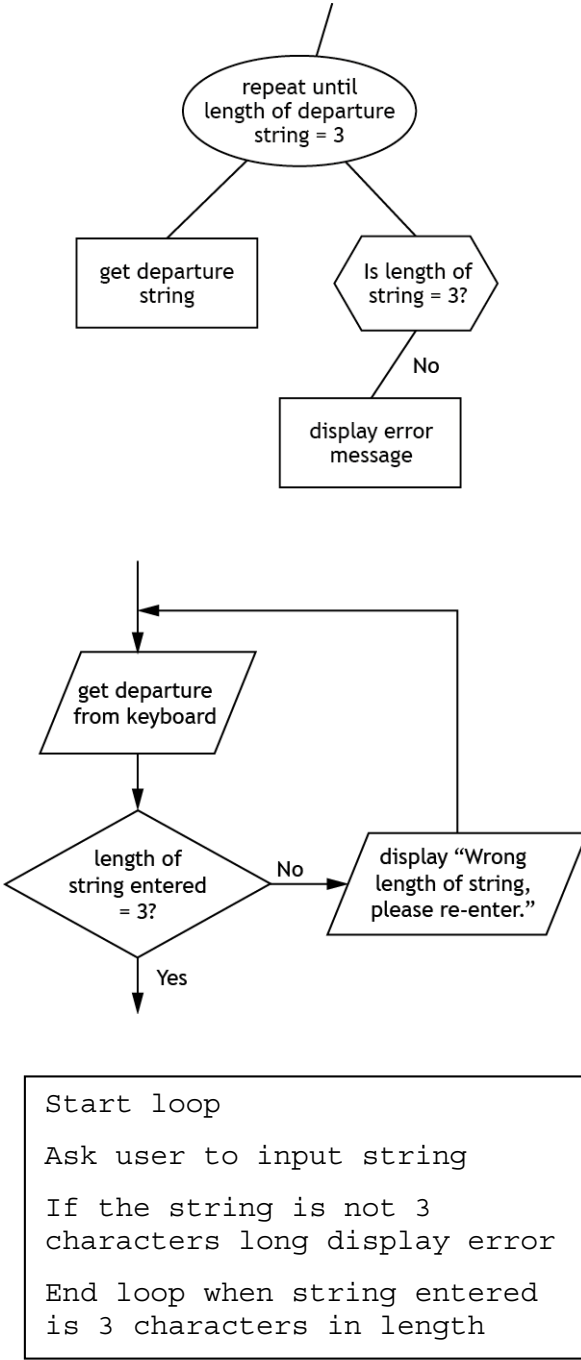
Question		Expected response	Max mark	Additional guidance
16.	(b)	<p>Alternative flowchart response for 16(b):</p> <p>This solution would not be awarded the mark for an efficient solution.</p>  <pre> graph TD     Start[/get salary from keyboard/] --&gt; D1{salary &lt;= 12000?}     D1 -- Yes --&gt; P1[set taxRate = 0]     P1 --&gt; J1(( ))     D1 -- No --&gt; J1     J1 --&gt; D2{salary &gt;= 12001 AND &lt;= 40000?}     D2 -- Yes --&gt; P2[set taxRate = 20]     P2 --&gt; J2(( ))     D2 -- No --&gt; J2     J2 --&gt; D3{salary &gt;= 40001?}     D3 -- Yes --&gt; P3[set taxRate = 40]     P3 --&gt; End[ ]     D3 -- No --&gt; End   </pre>		

Question		Expected response	Max mark	Additional guidance	
17.	(a)	<pre> erDiagram     Staff   --}  Bike : prepares     Staff {         string staffName         string employeeNumber PK         string staffAddress         string telNo         string expertise     }     Bike {         string serialNumber PK         string make         string model         string gears         string type         string employeeNumber*     } </pre>	4		
	(b)	(i)	Gears have not been changed to 8	1	
		(ii)	All Raleigh bikes now have seven gears	1	The Raleigh Cuckoo and Raleigh Sprint now also have seven gears
	(c)	(i)	One mark each for: <ul style="list-style-type: none"> <li>not fit for purpose</li> <li>two records deleted (both "Boardman CX Team 14" bikes deleted)</li> </ul>	2	
		(ii)	If delete includes the serial number	1	Use primary key



Question		Expected response	Max mark	Additional guidance
18.	(a)	<p>Any <b>two</b> from:</p> <ul style="list-style-type: none"> <li>• text changes appearance in middle of sentence (changes to italics)</li> <li>• bullets are different sizes</li> <li>• text in bullet list in different fonts</li> <li>• text in bullet list changes styles</li> </ul>	2	
	(b)	<pre>&lt;ul&gt; &lt;li&gt;Golf&lt;/li&gt; &lt;li&gt;Cricket&lt;/li&gt; &lt;li&gt;Ten Pin Bowling&lt;/li&gt; &lt;/ul&gt;</pre> <p>One mark each for:</p> <ul style="list-style-type: none"> <li>• &lt;ul&gt; and &lt;/ul&gt; surround text</li> <li>• &lt;li&gt; and &lt;/li&gt; surround list</li> <li>• one &lt;li&gt;&lt;/li&gt; for each list item</li> </ul>	3	
	(c)	(i) Javascript	1	
		(ii) onmouseover	1	
	(d)	(i) ID	1	
		(ii) One mark each for: <ul style="list-style-type: none"> <li>• 10px</li> <li>• LightGreen</li> <li>• italic and left</li> </ul>	3	
	(e)	(i) One mark each for: <ul style="list-style-type: none"> <li>• grid of pixels</li> <li>• colour of each pixel stored</li> </ul>	2	
		(ii) One mark each for: <ul style="list-style-type: none"> <li>• compressed file format</li> <li>• downloads faster</li> </ul>	2	
	(f)	Single file of styles (1) that can be applied to multiple pages (1)	2	
	(g)	<p>Any <b>one</b> from:</p> <ul style="list-style-type: none"> <li>• find a copyright-free graphic</li> <li>• ask for permission</li> <li>• pay to use it</li> </ul>	1	

Question		Expected response	Max mark	Additional guidance
19.	(a)	Pseudocode	1	
	(b)	BarBryantGla One mark each for: <ul style="list-style-type: none"> <li>• identifying only surname entered</li> <li>• three strings in correct order</li> <li>• no spaces as concatenated</li> </ul>	3	
	(c)	One mark each for: <ul style="list-style-type: none"> <li>• assignment</li> <li>• concatenation</li> </ul>	2	
	(d)	Interpreter – any one from: <ul style="list-style-type: none"> <li>• don't have to leave editing environment</li> <li>• position of errors in code identified during test run</li> </ul> Compiler – any one from: <ul style="list-style-type: none"> <li>• compiled code runs faster</li> <li>• code is only translated once</li> <li>• compiled code cannot be edited</li> <li>• compiled code requires less memory to execute</li> </ul>	2	

Question	Expected response	Max mark	Additional guidance
19. (e)	 <pre> graph TD     Start([repeat until length of departure string = 3]) --&gt; GetString[get departure string]     GetString --&gt; IsLength{{Is length of string = 3?}}     IsLength -- No --&gt; DisplayError[display error message]     DisplayError --&gt; Start     IsLength -- Yes --&gt; End(( ))   </pre> <p>Start loop      Ask user to input string      If the string is not 3 characters long display error      End loop when string entered is 3 characters in length</p>	4	Content of error message may be given in full or simply implied, "error message".

- One mark each for:
- input of string
  - conditional loop
  - condition length = 3 characters
  - error message

Question			Expected response	Max mark	Additional guidance												
20.	(a)	(i)	To link two tables	1													
		(ii)	One mark for each correct row <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Table</th> <th>Field</th> </tr> </thead> <tbody> <tr> <td>Primary key</td> <td>Branch</td> <td>branchNumber</td> </tr> <tr> <td>Primary key</td> <td>Car</td> <td>registration</td> </tr> <tr> <td>Foreign key</td> <td>Car</td> <td>branchNumber</td> </tr> </tbody> </table>		Table	Field	Primary key	Branch	branchNumber	Primary key	Car	registration	Foreign key	Car	branchNumber	3	Primary key rows do not have to be written in the order shown.
	Table	Field															
Primary key	Branch	branchNumber															
Primary key	Car	registration															
Foreign key	Car	branchNumber															
		(iii)	One branch has many cars	1	One-to-many on its own is not enough for a mark.												
	(b)		One mark each for: <ul style="list-style-type: none"> <li>headings</li> <li>two correct cars identified</li> <li>order of two cars correct</li> </ul> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Make</th> <th>Model</th> <th>Registration</th> </tr> </thead> <tbody> <tr> <td>Nissan</td> <td>Qashqai</td> <td>SH88 NNG</td> </tr> <tr> <td>Volkswagen</td> <td>Golf</td> <td>ST99 FDT</td> </tr> </tbody> </table>	Make	Model	Registration	Nissan	Qashqai	SH88 NNG	Volkswagen	Golf	ST99 FDT	3				
Make	Model	Registration															
Nissan	Qashqai	SH88 NNG															
Volkswagen	Golf	ST99 FDT															
	(c)		One mark for each correct row: <table border="1" style="margin-left: 40px;"> <tbody> <tr> <td>Field(s)</td> <td>model, colour, town, mileage</td> </tr> <tr> <td>Table(s)</td> <td>car, branch</td> </tr> <tr> <td>Search criteria</td> <td>model = "Ka"</td> </tr> <tr> <td>Sort order</td> <td>mileage ascending</td> </tr> </tbody> </table>	Field(s)	model, colour, town, mileage	Table(s)	car, branch	Search criteria	model = "Ka"	Sort order	mileage ascending	4					
Field(s)	model, colour, town, mileage																
Table(s)	car, branch																
Search criteria	model = "Ka"																
Sort order	mileage ascending																
21.	(a)		One mark each for: <ul style="list-style-type: none"> <li>bonus, real</li> <li>sales, integer</li> </ul>	2													
	(b)		One mark each for: <ul style="list-style-type: none"> <li>Extreme – 0</li> <li>Exception – any suitable example (&lt;0, text)</li> </ul>	2	Extreme – also allow limits of later conditions: 10,11,20,21												
	(c)	(i)	Logic	1													

Question			Expected response	Max mark	Additional guidance
21.	(c)	(ii)	One mark each for: <ul style="list-style-type: none"> <li>change first condition</li> <li>to sales &gt; 10 and &lt;= 20</li> </ul> Example structure chart response for 21(c)(ii):  	2	Alternative response could include redrawing the design as shown below:
	(d)	(i)	Register	1	
		(ii)	Arithmetic Logic Unit (ALU)	1	

[END OF SPECIMEN MARKING INSTRUCTIONS]