National
Qualifications
2019

2019 Computing Science

National 5

Finalised Marking Instructions

© Scottish Qualifications Authority 2019

These marking instructions have been prepared by examination teams for use by SQA appointed markers when marking external course assessments.

The information in this document may be reproduced in support of SQA qualifications only on a non-commercial basis. If it is reproduced, SQA must be clearly acknowledged as the source. If it is to be reproduced for any other purpose, written permission must be obtained from permissions@sqa.org.uk.

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.			185	**1**	
2.			One mark each for • title opening and closing • body opening and closing • h1 opening and closing	**3**	All three elements correct with no closing "/" in any element award two mark. All three elements correct with incorrect closing "\" in all elements award two mark. Accept full element as answers with < and >
3.			One mark each for • entry of money borrowed with user instruction and input area • entry of number of months with user instruction and input area • monthly payment message	**3**	Input area and user instruction may be combined within one box eg Amount to Borrow Award 0 marks if candidate has designed a program (flow chart, structure diagram, pseudocode) rather than a user interface. Ignore any buttons that may have been included in the user interface.
4.			One mark for first sort • manufacturer (ASC) If first sort present then one mark for second sort • productCode DESC	**2**	Do not accept "manufacturer DESC". Allow "ascending" and "descending" as not scaffolded. "productCode DESC" on its own, 0 marks
5.	(a)		Fixed	**1**	Unconditional
	(b)		50	**1**	Ignore additional working in answer as question involves testing a design.
	(c)		As orange tree is not an apple or pear tree it would still be set to £23	**1**	Do not accept "Same price as cherry tree" without explanation.
6.			(Not fit for purpose) as nothing on web page about how to join the club.	**1**	

Question			Expected response	Max mark	Additional guidance
7.	(a)		2 12	**2**	
	(b)		Running total (within loop)	**1**	
8.	(a)		Length (check) or presence (check)	**1**	Accept implementation examples of validation, LEN(bookRef) = 13
	(b)		The data/values are input in the wrong order.	**1**	"V R Singh" and "I'll do it yesterday" wrong way round.
9.			One mark each for • title "France" right aligned • bullet point list with the three correct items, in correct order and left aligned	**2**	
10.	(a)		Date	**1**	
	(b)		One mark for either • ALU • Arithmetic Logic Unit	**1**	
11.			One mark for type of error • Syntax One mark for any effect from • the program will not run • program stops (crashes) at error • reports error	**2**	Effect must relate to use of "£" instead of "&".
12.			Any one from • x coordinate • y coordinate • thickness/width • colour	**1**	Also allow: • length • rotation/angle • transparency/opacity • layer

Section 2

Question			Expected response	Max mark	Additional guidance
13.	(a)		Any two descriptions from • units used calculated (current-previous) • cost of units used calculated (units used * cost of unit) • check if the discount should be applied • subtract the discount • final bill is calculated • final cost is rounded • validate the input(s)	**2**	No mark awarded for stating the 'units used', subtraction the wrong way round: previous-current
	(b)	(i)	One mark each for • pixels • each pixel stored as a binary value	**2**	
		(ii)	One mark each for • ASCII • 8 (or 7)	**2**	Accept alternative answers such as • Unicode • 8 or 16
	(c)		One mark each for • real • Boolean	**2**	Do not accept: float, single, double Do not accept: yes, no, true, false
	(d)		One mark each for • 1500711 • 5	**2**	
	(e)		One mark each for • ending the loop • currentReading > previousReading **OR** currentReading >= previousReading	**2**	If a candidate writes a pre-conditional loop award one each for • currentReading < previousReading • while rather than "end loop". No marks for flow chart or structure diagram.

Question			Expected response	Max mark	Additional guidance
13.	(f)		One mark each for • IF • condition showing if the discount is selected • assignment of discounted cost within IF (cost – 5) • display with round to 2dp	**4**	Allow formatted output to 2dp Allow assignment decrement abbreviation: cost=-5 Cost may be reassigned to a different variable name. For example: discount = cost – 5 No marks for flow chart or structure diagram.
14	(a)		Any two from The system/database should be able to: • insert new activities • search/list members registered for a particular activity • search/list details of leaders with first aid qualifications • sort/list members alphabetically by town	**2**	Must relate to scenario, do not award marks for generic answers. Accept store, add, update, any information related to the scenario.
	(b)		One mark each for • missing attribute added: - only **one** attribute added to ERD - actCode added to Member entity • many (Members) to one (Activity) relationship drawn • relationship named appropriately • identify PK memberNum and FK actCode in Member table	**4**	Variations on "actCode" are acceptable for the foreign key attribute as the field could be named differently when implemented.
	(c)		One mark each for • restricted choice • with three options **OR** levels **OR** Beginner, Intermediate, Advanced	**2**	Also accept • presence check • description of presence check relating to scenario

Question			Expected response	Max mark	Additional guidance
14.	(d)		Any two from • processed lawfully • must declare the purpose for which the data will be used (used for declared purpose only) • collect only the data required for the declared purpose • data must be accurate • delete personal data if members leave the club (not keep data longer than necessary) • store data securely • data can't be shared without members permission • must show members their stored details when requested	**2**	Answers must refer to youth club implications and not members' implications.
15.	(a)		Any two from The users wish to: • see the pictures • read the reviews • read the technical specification • see the video	**2**	Reference to "fridge freezers" is not required as this is given in question stem.
	(b)	(i)	Any one from • ask permission to use the pictures • purchase licence to use image	**1**	
		(ii)	One mark for any correct advantage • Image A (jpg): - greater colour depth - compression rate can be changed - lossy compression • Image B (gif): - transparency - animation - lossless compression - can change colour depth	**2**	Do not accept "bit depth" as the colours used in both file types is 24bit.
	(c)	(i)	onmouseover	**1**	
		(ii)	Any two from • specifies the width of the video (500) pixels • specifies the height of the video (250) pixels • locates/displays the file (called "starFrost.mp4") • shows video with control buttons	**2**	
		(iii)	Same style applied to (every page of) the website.	**1**	Implements consistency across website

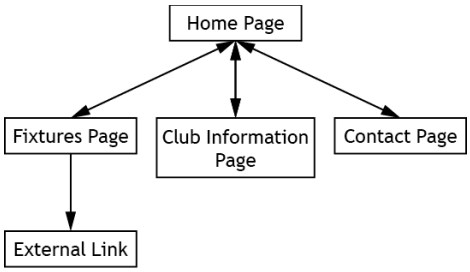
<table>
<tr><th colspan="3">Question</th><th>Expected response</th><th>Max mark</th><th>Additional guidance</th></tr>
<tr><td>15.</td><td>(d)</td><td></td><td>Any one from
• encrypt the data
• have installed a firewall</td><td>1</td><td></td></tr>
<tr><td>16.</td><td>(a)</td><td></td><td>Flow chart</td><td>1</td><td></td></tr>
<tr><td></td><td>(b)</td><td>(i)</td><td>Is wash finished?</td><td>1</td><td>Exact wording is not required.</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>Any one from
• assignment
• arithmetic operation
• conditional (if) statement

One mark for a description of the effect of the above construct, in context.</td><td>2</td><td>Do not accept “loop” as this is stated in part (i). The second mark, for description, can still be awarded in this case.

If the construct is described, rather than named, a mark may still be awarded for a correct description.</td></tr>
<tr><td></td><td>(c)</td><td></td><td>One mark each for
• loop with condition
• (sensor) detects water level
• open door when no more water</td><td>3</td><td>Do not allow human input of water level.</td></tr>
<tr><td></td><td>(d)</td><td>(i)</td><td>Data</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>(ii)</td><td>One mark each for
• separate locations/addresses
• unique</td><td>2</td><td></td></tr>
<tr><td></td><td>(e)</td><td></td><td>Any one from
• It requires no further translation
• The translator does not need to be in the memory of the washing machine</td><td>1</td><td></td></tr>
<tr><td>17.</td><td>(a)</td><td></td><td>A presence check (added to the startDate field)</td><td>1</td><td>Set the field to required</td></tr>
<tr><td></td><td>(b)</td><td></td><td>One mark each for the following
• jobTitle, (initial), surname with no other fields
• Vacancy, Employee
• department = Production
• payGrade = 2

<table><tr><td>Field(s)</td><td>jobTitle, (initial), surname</td></tr><tr><td>Table(s)</td><td>Vacancy, Employee</td></tr><tr><td>Search Criteria</td><td>department = Production
payGrade = 2</td></tr><tr><td>Sort Order</td><td></td></tr></table></td><td>4</td><td>Logical operators and equi-joins are not required in the search criteria as this is design.

If logical operators are used then they must produce the correct result. If they do not, the first criteria may be marked correct and subsequent criteria should be marked as incorrect.</td></tr>
</table>

Question			Expected response	Max mark	Additional guidance
17.	(c)	(i)	One mark each for • payGrade should be set to 2 **OR** there would be no update to payGrade as value is already '3' • there is more than one Patel	**2**	
		(ii)	One mark each for • UPDATE Employee SET payGrade = 2 • WHERE appRef = 327	**2**	Also accept WHERE surname="Patel" AND initial="H"
	(d)	(i)	One mark for • Two correct fields, with correct headings, in correct order One mark for each row of search results • Manager 330 • Clerk 327 • Administrator 329 One mark for • above three rows in descending order of jobTitle.	**5**	Example output jobTitle appRef Manager 330 Clerk 327 Administrator 329 If the search results are correct but also contain additional rows then award 2 marks out of 3 available.
		(ii)	Actual output would be compared to the predicted results	**1**	
18.	(a)		One mark each for • home page • three sub-pages: information, fixtures, contacts • double arrow links to three sub-pages • single arrow link pointing to an external page from 'Fixtures'	**4**	
	(b)	(i)	ID	**1**	

		(ii)	One mark each for
			• class created with correct structure:
			- dot
			- name
			- brackets
			- semi-colon to separate declarations
			• background-color:red
			• color:yellow
				3	.away {
					background-color:red;
					color:yellow
					}
					
					Ignore additional declarations.
					
					Syntax **must** be accurate, as an example has been given in the question.

Question			Expected response	Max mark	Additional guidance
18.	(c)		External link should use absolute addressing.	**1**	Also accept: • relative addressing should not be used. • a description of a full path name required in the address.
	(d)	(i)	png	**1**	portable network graphic
		(ii)	One mark each for • correct relative location with no preceding folders: media/ • graphic file name: logo.png	**2**	media/logo.png
19.	(a)	(i)	AND	**1**	
	(b)	(i)	logic	**1**	
		(ii)	One mark each for • including conditional loop: total<50 AND balls>0 • including: - Input - total calculated - balls decremented • if total >= 50 set balls to 0/exit loop in correct place • if total = 50 then display prize message	**4**	If a candidate writes line numbers assume that the code given in the question is included in their answer. "Correct place" for third bullet should be after the new total has been calculated but before the end of the loop. Accept variations of the same conditions (ball !=0, NOT(total>=50) etc). Conditional loop may be replaced by a design that repeats for each ball. In this case "balls decremented" would also not be required.
	(c)	(i)	User can enter a ball score (between 0 and 75) that was impossible to achieve.	**1**	
		(ii)	Data structure – array Data type - integer	**2**	Do not allow "int"
		(iii)	One mark each for • changed to true when a match is found • stops the loop	**2**	

[END OF MARKING INSTRUCTIONS]