National
Qualifications
2025

2025 Computing Science

National 5

Question Paper Finalised Marking Instructions

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

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) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted.

(c) If a candidate response is not covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.

(d) Award marks regardless of spelling, as long as the meaning is unambiguous. This applies to all responses, including code. Award marks as per the detailed marking instructions, regardless of syntax errors, if the intention of the coding is clear.

(e) For questions where candidates are asked to design or write code, a sample response is shown in the detailed marking instructions. This will not be the only valid response. You must use the detailed marking instructions and additional guidance to ensure that you consider alternative approaches and nuances of different programming languages. If in doubt you should refer to your Team Leader.

(f) A correct response can be negated if the candidate includes an extra, incorrect response. For example, if the candidate is asked for two answers for two marks and the candidate gives three, one of which is incorrect, they are awarded one mark.

(g) If a candidate scores through a response and makes a further attempt, you should only mark the further attempt. If no further attempt is made and the original is legible, you should mark the original response.

(h) Where an incorrect response is carried forward and used correctly in a following part of the question, you should give credit for subsequent responses that are correct with regard to the original error. Candidates should not be penalised more than once for the same error.

(i) Only award marks for a valid response to the question asked. Where candidates are asked to:

- **Identify**, **name**, **give** or **state,** they need only name or present in brief form.
- **describe**, they must provide a statement or structure of characteristics and/or features. This will be more than an outline or a list. It may refer to, for example, a concept, process, experiment, situation, or facts, in the context of and appropriate to the question. Candidates must make the same number of factual/appropriate points as there are marks available in the question.
- **explain**, they must relate cause and/or effect and/or make relationships between things clear, in the context of the question or a specific area within the question.
- **write code,** they must write recognisable code, not prose nor a diagram.
- **design,** they must use a design technique appropriate to the problem. Award marks as per the detailed marking instructions, regardless of errors in the exemplification of the technique, if the intention of the design is clear.

(j) In the marking instructions, if a word is underlined then it is essential; if a word is bracketed() then it is not essential. Words separated by / are alternatives

Marking instructions for each question

Section 1 - Software design and development, and Computer systems

Question			Expected response	Max mark	Additional guidance
1.	(a)		01001111	**1**	
	(b)		• 56 • 7 x 8	**1**	Award 1 mark for any one bullet.
2.			Any suitable example that describes the return to a previous stage of the software development cycle is required.	**1**	**For example:** • the program is not fit for purpose so requires additional design/implementation/testing • errors found during testing so implementation is revisited • errors are found which require returning to a previous stage
3.	(a)		9	**1**	
	(b)		• meaningful variable names • indentation	**1**	Award 1 mark for any one bullet. Accept a description of why the variables are meaningful.
4.			• mantissa: 127 • exponent: 2	**2**	
5.			Bitmap	**1**	
6.			• concatenation • description of two strings being joined	**1**	Award 1 mark for any one bullet. Do not award a mark for "adding" strings.
7.	(a)		• integer • string	**2**	Accept int, str
	(b)		• assignment to seatnum • random function generating 50 values	**2**	
8.	(a)		Flowchart	**1**	
	(b)		Conditional	**1**	
	(c)		Boolean	**1**	

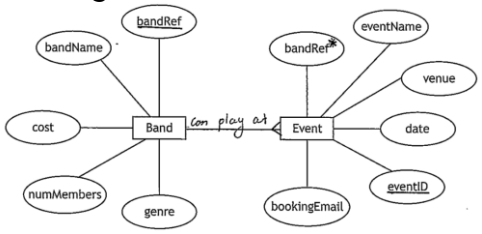
Question			Expected response	Max mark	Additional guidance
9.	(a)		**object** • polygon **attribute** • X coordinate • Y coordinate • line colour • fill colour • line thickness • transparency/opacity	**2**	Award 1 mark for object and 1 mark for attribute matching the object given. Do not allow "hexagon" **OR** "line". Second mark may still be awarded if attribute matches an incorrect object given.
	(b)		• input of purpose • IF statements for each purpose • education is `basicCost - 20` charity is `basicCost - 30` • `finalCost` must be able to display either: basicCost - 20 basicCost - 30 basicCost	**4**	
	(c)	(i)	ALU (Arithmetic Logic Unit)	**1**	
		(ii)	Register(s)	**1**	
	(d)		Reduce power/electricity/energy consumption	**1**	

Question			Expected response	Max mark	Additional guidance
10.	(a)		• validate password length = 5 • validate gift card number • check username exists • check gift card number exists • check password entered is correct (matches user's password) • calculate/update new balance	**3**	Award 1 mark for each bullet. Maximum 3 marks.
	(b)		• conditional loop • correct loop condition always valid for password length = 5 • input assigned inside the loop • error message inside the loop	**4**	Where candidate uses a post conditional loop the error message must be contained within a correct if statement. Where candidate does not use a loop, one mark may be awarded for the error message where attached conditions are correct. If the loop is missing the start/end of the loop assume that everything above or below the start/end is inside the loop.
	(c)		• normal/extreme • any value not 5 characters long	**2**	

Question			Expected response	Max mark	Additional guidance
11.	(a)		• loop for each month (12 times) • running total adding calories to total in loop • use next value in calories • calculate avgcalories from total variable	**4**	Must use structure and variable names given. Average could be calculated by dividing each value inside loop by 12 before adding to running total.
	(b)		• round() function with brackets • with correct parameters: – avgCalories – 1	**2**	
	(c)	(i)	AND	**1**	
		(ii)	• logic • < should be >	**2**	Line 29 <6000 should be changed to >6000
	(d)		Compiler	**1**	
	(e)		Robust(ness)	**1**	
	(f)		Encryption	**1**	
	(g)		Entry of • member or pay as go • gym or fitness class • rating 1 - 10 • additional comments	**4**	Input area and user instruction for text entry may be combined within one box for a single input. Ignore any additional objects/text/ buttons that may have been added to the user interface. Award 0 marks if the candidate has designed a program (pseudocode, flow chart, structure diagram) rather than a user interface.

Question			Expected response	Max mark	Additional guidance
12.	(a)		• use a loop for each round (10 times) • use a loop for each the two arrows within one round • array used to replace roundtotals • running total inside loop	**3**	Award 1 mark for each bullet. Maximum 3 marks. **Also accept:** • replacing 10 running total lines with one line of code • use sum function to calculate totalscore rather than do a running total
	(b)		• scores are real values but should be integers • no input validation for data entry	**1**	Award 1 mark for any one bullet. Could explain that user entered .60 instead of 60 and as real accepted this was ok for data entry.
	(c)		(The condition means) the loop will never execute/run.	**1**	Also allow, 41 competitors may be entered. At line 80 `stop` should be set to FALSE At line 82 the condition could be `stop = TRUE` (or just `stop`)

Section 2 - Database Design and Development

Question			Expected response	Max mark	Additional guidance
13.			• cost desc • pieceAmount desc	**2**	The second sort can only be awarded if the first sort has used the cost field. Award one mark if both sorts are identified but are written in the wrong order. Ignore syntax errors, for example using AND instead of a comma.
14.	(a)		• text • fullTime	**2**	Do not award a mark for 'string'.
	(b)		jobTitle	**1**	**Also allow:** • startDate • fullTime
15.	(a)		• identify keys: – PK eventID, bandRef – FK bandRef in Event • 1:M from Band to Event • naming the relationship	**3**	See diagram below. 
	(b)		• SELECT bandName, date FROM Band, Event • WHERE Band.bandRef = Event.bandRef • AND genre = "Country" • AND venue = "The Old Poet"	**4**	SELECT • fields can be in any order • do not award a mark if additional fields have been included FROM • table names can be in any order WHERE • order of search conditions and equi-join could change Quotes not required.
	(c)		• data must be held securely • prevent unauthorised access	**1**	Award 1 mark for any one bullet. Must be a GDPR requirement.

Question			Expected response	Max mark	Additional guidance
16.	(a)	(i)	**Field(s)** • forename, surname, driverNum, teamName **Table(s)** • Team, Driver **Search Criteria** • wins >3 • location= "United Kingdom"	**4**	Candidates may express answers differently eg wins >= 4 **Field(s)** • fields can be in any order • do not award a mark if additional fields have been included **Table(s)** • table names can be in any order **Search Criteria** • conditions can be in any order • equi-join not required Quotes not required.
		(ii)	Compare expected results to actual results.	**1**	
	(b)		• **Headings:** – teamID, teamName, titlesWon • **Rows:** – PV81 Prime Speed 5 – RR32 Rapid Racers 7	**2**	Award 1 mark for three correct headings, in correct order. Award 1 mark for both rows of the search results in any order.
	(c)		• `UPDATE driver` • `SET points = 50` • `wins = 2` • `WHERE driverNum = 77`	4	The two update values in SET may be either way round. The first update value requires SET. Ignore syntax error where a comma is missing in SET or the comma has been replaced with AND Also award the WHERE mark for `forename = Jackie AND surname = West`
	(d)		• explanation of referential integrity with reference to the team • teamID ('PC81') does not exist (in the 'Team' table)	**1**	Award 1 mark for any one bullet. Naming the teamID is not required as only one is included in the question.

Section 3 - Web Design and Development

Question			Expected response	Max mark	Additional guidance
17.			(On)mouseout	**1**	
18.			• absolute is the full URL/address • relative is a partial URL/address	**2**	
19.			**(The website should…)** • display pictures of farm • include/play/have videos of farm • display the price of tickets • display opening times • display all products for sale • include (pre-)booking animal experience option	**2**	Award 1 mark for each bullet. Maximum 2 marks. Do not accept generic answers that could refer to any website.
20.	(a)		• smaller file size/compressed • faster rate of transfer/download • compatible with multiple browsers	**1**	Award 1 mark for any one bullet.

	(b)	(i)	• opening and closing
			• both elements
			• link <a> enclosing pisa
				3	Ignore syntax errors.
					Code for correct answer:
					`<ul>`
					`<li> <a href="Pisa.html"> Pisa </a></li>`
					`<li> Rome </li>`
					`</ul>`

		(ii)	• audio added to opening and closing tag
			• correct path: assets/
			• romeinfo.mp3
				3	`<audio controls>`
					`<source src ="”Assets/Romeinfo.mp3”>`
					`</audio>`

Question			Expected response	Max mark	Additional guidance
21.	(a)		• three named pages • double sided arrows connecting pages to home page • external named page from 'getting here' with one sided arrow	**3**	
	(b)		• h1 or #SkiValley • font-size: 40pt/px • color: aqua	**3**	CSS declarations should be structured - correct property : value
	(c)	(i)	• reduce the sampling rate • compressed further	**1**	Award 1 mark for any one bullet. Also accept reduce sampling depth.
		(ii)	• images/video are correctly displayed • matches user-interface design • links/navigation works correctly • consistency • Javascript events work correctly • browser compatibility	**1**	Award 1 mark for any one bullet. Testing the audio file is included in the question.
	(d)	(i)	• price missing • description missing • no link to home page	**1**	Award 1 mark for any one bullet.
		(ii)	Copyright Designs and Patents (Act)	**1**	
	(e)		• centred • size 28(px) • text – white • background colour - red	**3**	Award 1 mark for each bullet. Maximum 3 marks.

[END OF MARKING INSTRUCTIONS]