2014 Computing Science

National 5

Finalised Marking Instructions

SQA ©

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.

(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

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.		An internal hyperlink points to a file/another page within a website (1 mark) An external hyperlink points to another website (1 mark)	2	
2.		Browser	1	Trade name on its own, no marks.
3.		400x600(1mark) x 8 (1mark) =1920000 (bits) 1920000/8 = 240000 (bytes) 240000 (bytes)/1024 (1 mark) = 234.375 (Kb)	3	2 marks for identifying formula, 1 mark for changing units. Kb not required as in question 3 marks for correct answer with no working Accept rounding up to 235
4.		Arithmetic Logic Unit/ALU	1	No other answer
5.		00101111	1	Must be represented using 8 bits
6.		• Data duplication • Data inconsistency or update/deletion/insertion anomalies • Data integrity errors (due to data inconsistency) • Inconsistent search results in multi-value fields	1	Any one valid
7.		• Encryption • Password/PIN • Biometric	1	Any one valid
8.		• Reduces the chance of human error • Does not require the user to type a text response • Speeds up the ordering process as inputs are reduced to mouse clicks • Allows the use of a touchscreen • Do not have to remember any types of pizza on offer	1	Any one valid No marks for "easy to understand" on its own as answer must indicate why it's easier.
9.		Check navigation Checks all hyperlinks/hotspots Ensure graphics are not pixelated Ensure audio clips run Any JavaScript issues Check compatibility with browsers	1	Can't refer to 'screen layout' in answer as design mentioned in question.

Question			Expected Answer(s)	Max Mark	Additional Guidance
10.			- Can access data from any computer device remotely - No requirement for own servers - Less need for own technical support on site - Automatic backup/recovery of data	1	Any one valid
11.			Client Server - Data can be stored/accessed centrally - Only accessible by registered users - Different access rights for users - Shared peripherals - Expensive with explanation Peer to Peer - Resources stored on device available to other peers - No centralised stored - Not as secure as Client Server - Risk from viruses	2	One answer from each bullet point list. If candidate simply describes the topology of both types of network, with no mention of advantages, disadvantages, features etc then award only 1 mark for the two answers.
12.			An error is displayed (1 mark for exemplifying line 3) User re-enters a level (1 mark for exemplifying line 4)	2	
13.			An example of: - Non numeric - Out of range - Real numbers	1	Any one valid
14.	(a)		3	1	
	(b)		Replace OR with AND	1	

Section 2.

Question			Expected Answer(s)	Max Mark	Additional Guidance
15.	(a)		http://www.holibobs.co.uk/greece/crete234.html	**1**	
	(b)	(i)	Tags Styles	**1**	Any one valid
		(ii)	External link to another site/server	**1**	
		(iii)	Any acceptable use of Javascript to create interactivity or dynamic content on a webpage.	**1**	
	(c)		• mp4 – 'Download Videos' or 'Virtual Tour of Property' buttons • jpeg – Any example of a graphic on page or 'Photo Gallery' or 'Location Map' or 'Villa picture' or 'Holibobs Icon' or 'Weather Widget'	**2**	No marks for definition of mp4 or jpeg
	(d)		• Reduced colour depth • Smaller file size • Allows image to load faster	**2**	1 mark for each answer
	(e)		• Price descending (1 mark) • Resort ascending (1 mark, but must follow Price)	**2**	Must include ascending/descending or suitable description of order If the order of the two fields is written in the reverse order award only 1 mark

Question			Expected Answer(s)	Max Mark	Additional Guidance
16.	(a)		6	**1**	Also accept 5 as program could include formula as: Profit = Selling Price – (Water Cost + Flavouring Cost + Labour) therefore Manufacturing Cost variable not required.
	(b)		4 values input – Water Cost, Flavour Cost, Labour Cost, Selling Price (2 marks) (Award 2 or 3 values input (1 mark)) Manufacturing Cost = Water Cost + Flavouring Cost + Labour (1 mark) Profit = Selling Price – Manufacturing Cost (1 mark) Output of Profit (1 mark)	**5**	If calculation combined into 1 line then award 2 marks Ignore whether candidates ticks pseudocode box or complete program language box. Candidates are asked to "write a program" and therefore must include details on the various inputs and calculations. For example: *Get the 4 inputs* Would be awarded no marks
	(c)	(i)	(Input) Validation	**1**	
		(ii)	Test Data / Type of Test Data table (below)	**3**	

Test Data (Flavouring)	Type of Test Data
0.05	exceptional
0.45	normal
0.10	extreme
0.50	extreme

Question			Expected Answer(s)	Max Mark	Additional Guidance
17.	(a)		Answers should identify parts of this webpage which will not be suitable on a small screen device. For example: • Navigation bar does not fit across small screen • Too many columns • Too much information for small screen • Icons too small to click on right hand side • Would take too long to load images on portable device	2	Must give 2 different reasons
	(b)		Personal details transmitted in code cannot be read (by hackers). or Keeps personal data secure/safe or Only the company can access the encrypted data	1	If candidate states 'stops personal data being intercepted' award no marks.
	(c)		Different operating systems on devices or Hardware differences (resolution, dual core processor, memory etc)	1	
	(d)		• Touchscreen • Microphone • Camera	2	Any two, 1 mark each
	(e)		Smartphone (1 mark) Storage: Solid state Reason: Low power/size/robust/ transfer rate Web Server (1 mark) Storage: Magnetic Reason: Large capacity/low cost per Mb DVD (1 mark) Storage: Optical Reason: Portable/read by range of devices	3	If the candidate has one correct row (ie 1 mark) then an additional mark may be awarded for a correct column. Cost with a reason an acceptable answer for all three devices
	(f)		Random Access Memory	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
18.	(a)	(i)	17	**1**	
		(ii)	20	**1**	
		(iii)	16	**1**	
	(b)		Syntax	**1**	
	(c)	(i)	Conditional (loop)	**1**	
		(ii)	Real number >20 and <70	**1**	
	(d)		Structure Chart Structure Diagram Flow Chart	**1**	1 mark for any other contemporary design notation.
	(e)		Interpreter (1 mark) No need to leave the programming environment/tracing facilities/debugging facilities (1 mark)	**2**	Note that both interpreters and compilers translate code one line at a time and return errors. Candidates answer must go further to distinguish between the two.
	(f)		Interface	**1**	

Question			Expected Answer(s)	Max Mark	Additional Guidance
19.	(a)	(i)	1 mark for showing a linear design 1 mark for all arrows 	2	Must include arrows at each end as the original design shows back and next buttons on the left and right pages.
		(ii)	Carbon Footprint is the overall harmful emissions associated with a life of a product/time frame.	1	No mark for "carbon produced" as carbon on its own is not toxic. Must be carbon dioxide, greenhouses gasses etc.
		(iii)	Logic error executes but gives wrong answer. Calculation incorrectly implemented.	1	Must relate to programming, not just "because the answer is wrong".
	(b)	(i)	Selection: user clicks on tile Repetition: repeat turn/repeat tile turning until tiles matched/repeat game	2	
		(ii)	Candidate should specify energy saving tip relating to image. For example: Diagram 1: Switch off device when not in use to save energy. Don't leave devices on standby when not in use. Diagram 2: Laptops use less power. Switch laptop to hibernate when not in use. Reduce brightness to save power. Dispose of laptops correctly	2	
		(iii)	Demonstrate understanding of copying work created by others. For example: • Use of images without copyright permission • Plagiarism of other persons writing	1	
		(iv)	Faster transfer/download speed Downloading via mobile might use up data (allowance)	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance

20.	(a)		REPEAT 6 (1 mark)
			   move(n) (1 mark)
			   rotate(60) (1 mark)
			  END REPEAT
				3	Unconditional loop (1 mark)
					Movement of n (1 mark)
					Rotation of 60 (1 mark)

	(b)		1 mark each any of • Internal commentary • Meaningful identifiers • Modularisation • White space • Indentation	**1**	
	(c)		Any suitable function. For example: • Polygon (any shape) • Text tool • Fill	**1**	Not "hexagon" or "square" as they are given in the question.
	(d)		8 45	**2**	Watch for other solutions 8,135 would also draw the correct pattern of squares.
	(e)		Square requires: startx, starty (1 mark) length, rotation (1 mark)	**2**	Award 1 mark for a description of attributes of an object being stored but no detail.
	(f)		Structure Chart or Flow Diagram/Chart	**1**	1 mark for any other contemporary design notation.

Question			Expected Answer(s)		Max Mark	Additional Guidance
21.	(a)	(i)	EXHIBITOR table exhibitor code company name area stand number	PRODUCT table exhibitor code product ref item name price	2	1 mark for each table, must be 100% correct for each mark.
		(ii)	Exhibitor code		1	If the wrong field is used as the Primary/Foreign key in both of the above tables and is then used as the answer for part (ii), award 1 mark as candidate has stated a field that appears in both tables.
	(b)		Object Graphic Container		1	
	(c)		Presence check		1	
	(d)	(i)	• Large areas to make selection easy • Large readable text • Uncluttered screen		1	
		(ii)	• Macro/Script/search program activated (1 mark) • Search carried out using Area field = Tech Zone (1 mark)		2	
	(e)		• Breadcrumb • Highlighted selection • Back/Forward buttons • Search (bar) • Home (button)		2	Any two valid

[END OF MARKING INSTRUCTIONS]