Computing

Sixth Form Examination 2015

Mark Scheme

Section A – Programming [36 marks]

Question			Answer	Marks	Guidance
1	(a)	(i)	TRUE	1	
		(ii)	TRUE	1	
		(iii)	TRUE	1	
		(iv)	Please take your items	1	

	(b)		```IF NOT(PaymentIncomplete) AND (BaggingAreaWeight > 0) THEN```
			    ```OUTPUT "Please take your items"```
			```ELSE```
			    ```IF PaymentIncomplete THEN```
			        ```OUTPUT "Please pay for your items"```
			    ```ELSE```
			        ```OUTPUT "Thank you for shopping with us, have a nice day"```
			    ```END IF```
			```END IF```
			Marks for
			Tests for PaymentIncomplete being TRUE or FALSE
			And based on these tests:
			Outputs "Please pay for your items" when PaymentIncomplete = TRUE and BaggingAreaWeight = 10
			Outputs "Thank you for shopping with us, have a nice day" is PaymentIncomplete = FALSE and BaggingAreaWeight = 0
			Outputs "Please take your items" when PaymentIncomplete = FALSE and BaggingAreaWeight = 10
				4	

	(c)	(i)	When a function/procedure/subroutine calls itself.	1	
		(ii)	04 and 08	1	
	(d)	(i)	3 x 10p vouchers are printed	1	
		(ii)	7 x 10p vouchers are printed and 1 x 5p vouchers	1	
2	(a)	(i)	A data structure / set of data items Of the same data type Grouped under one identifier Each item can be addressed using its index	2	
		(ii)	FALSE	1	
	(b)	(i)	A group of instructions is repeated For a set number of time… …or until a condition is met	2	

		(ii)	FOR X = 1 to 8	5	
			IF Status(Checkout,1) = TRUE THEN		
			OUTPUT Checkout+" Status OK"		
			ELSE		
			OUTPUT Checkout+" Out of order"		
			END IF		
			NEXT X		
			Award marks for:		
			FOR loop initialised correctly		
			Correct range used		
			Separate counter variable removed		
			FOR loop ended correctly		
			Logic of IF statement correct		
	(c)		**Normal**	6	
			Test data: Any date between 4th April and the end of April		
			Expected outcome: The item should not be reduced		
			Borderline		
			Test data: 1st, 2nd or 3rd or April		
			Expected outcome: Appropriate for stated test data		
			Invalid		
			Test data: Any date before 1st April		
			Expected outcome: error message		
	(d)		Any 8 of the following:	8	
			• A program for a procedure with the parameters (ItemName, ItemPrice, ItemWeight)		
			• Outputs the name and price of the item		
			• Asks the user to place the item in the bagging area		
			• Uses an IF statement to compare the ItemWeight to the TotalWeight		
			• The condition correctly checks whether or not the item has been placed in the bagging area		
			• Uses a loop to keep asking the user to place in the item in the bagging area until the condition is met		
			• Features a 5 second delay		
			• Uses indentation to make the code easier to read		
			• Includes comments to make the code easier to understand		

Section B – Hardware and Software [16 marks]

3	(a)		ROM non-volatile/RAM volatile ROM normally smaller than RAM Data on ROM cannot be changed, on RAM it can	2	
	(b)	(i)	Will not need to be changed Cannot be changed Will not need loading/installing Immediately available when switched on	2	(1 per, max 2)
		(ii)	Need to allow user to enter data Processor must have some RAM as working memory/buffer Used to load data from disk when playing/currently running programs/data in use	2	
4	(a)	(i)	699	1	
		(ii)	-187 (1 for -, 1 for 187)	2	
		(iii)	Two types of data in same value / msb is a sign … …must be treated differently Makes arithmetic algorithms very complex Extending from 1 byte to 2 or more bytes very difficult (1 per point, max 3)	3	
	(b)	(i)	11011000 1 11 (1 for answer, 1 for carries)	2	
		(ii)	1 0 1 ~~1 0 0~~ 1 0 0 0 1 0 0 1 1 0 1 0 0 0 1 1 0 0 (1 for answer. 1 for showing method)	2	

Section C – Implications of Computer Use [8 marks]

| 1 | | | Points to be made may include:
Technological advances in white goods:
Automatic washing machines/dishwashers/...
…leading to increased free time...
…increased leisure time/more family time/...
…chance to go to work because of time freed up, leading to...
…increased family wealth
chance to work from home:
More time spent in productive work
Chance to plan work around home life
Because of advances in communication and...
…and availability of more accessible technology
More recent advances including:
Intelligent larders which know what food is in them and place automatic orders...
…delivered by supermarket and placed in larder from outside
reduces the need for shopping
Robotic cleaners...
...reducing the need for cleaning by hand
Microwave cookers have simplified the task of cooking together with...
...large amounts of processed food available which does not need preparation
All have reduced the number of tasks to be done...
...the amount of time spent on those tasks which still need to be done
...the knowledge needed to complete the tasks
The amount of socialising has been reduced e.g. when doing the shopping. | 8 | **Mark band 6 – 8. Higher level response**
Candidate has described a number of areas in which computer technology has changed tasks needing to be done and the effects that these have had on the people concerned.
Candidate has used appropriate technical terminology throughout.
There are few, if any, spelling errors or errors of grammar.

Mark band 3 – 5. Medium level response
Candidate has described at least one area in which computer technology has changed tasks needing to be done and the effect that this has had on the people concerned.
Candidate has used some appropriate technical terminology in the response.
There may be spelling errors or errors of grammar in the response but they are not obtrusive.

Mark band 0 – 2. Low level response
Candidate may have described an area in which computer technology has changed tasks needing to be done or has described the effect that an area of technology has had on the people concerned, or has failed to address either of the areas in the question.
Candidate has failed to use appropriate technical terminology.
There are likely to be spelling errors and/or errors of grammar, which will disrupt the flow of the response. |