

**Coursework Task  
C206 11**

**Intermediate 2 Computing**

*Valid for session 2008/2009 only*

## Coursework Task

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Level: Intermediate 2

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## **Section 1**

### **Organisation and conditions for assessment**

## Organisation and conditions for assessment

The assessment is designed to test the candidates' ability to apply knowledge and understanding and practical skills, developed through study of the Computer Systems and Software Development Units.

The notional design length for the assessment is 8 – 10 hours. However, a candidate may be allowed longer than this if required. Sections 2 and 3 should be given to the candidates.

The assessment is to be undertaken under “open book” conditions, but under supervision to ensure that the work submitted is the candidate's own work. The tutor may give the candidate hints and/or help if requested. Any such help should be reflected in the marks awarded. Once the task has been completed and marked, it should not be returned to the candidate for further work.

The task is designed to discriminate between candidates and, therefore, would be expected to provide a wide range of marks. Stronger candidates should be able to complete the task successfully, and without tutor assistance, within the suggested time. Weaker candidates might not complete all aspects of the task within a reasonable time, or may require significant assistance, and so would achieve a lower total mark. Note that there is no requirement for a candidate to achieve a threshold to “pass” the assessment.

The mark obtained out of 30 should be submitted to the SQA unscaled. This will be combined with the Question Paper mark out of 70 to establish the candidate's overall grade of award. The Coursework mark should also be used in preparation of estimate grades.

## **Section 2**

### **Coursework Task**

# Coursework Task

## Intermediate 2 Computing Coursework Task 2008-2009

### Part 1

The manager of a school cafeteria wants to use a computer system to calculate how much each customer has to pay. Members of staff have to pay VAT on their purchases but pupils do not. If the customer is a member of staff then the program will calculate the VAT and add it to the total cost.

VAT is calculated using the formula:

$$\text{VAT} = 0.175 \times \text{total cost}$$

The system requires the following inputs:

- How many items the customer has to pay for
- The price of each item in pounds
- Whether the customer is a pupil or a member of staff (P for pupil and S for staff)

The output from the program should display the total cost of purchases, the type of customer, the amount of VAT to be paid and the final cost eg

Total cost of purchases:	2.38
Type of customer:	S
VAT:	0.42
Final Cost:	2.80

Your task is to create software for this system.

The top level algorithm is shown below. Step 2 has been refined.

### **Pseudocode**

#### **MAIN STEPS**

1. Get number of items being purchased
2. Calculate total cost of purchases
3. Get valid type of customer
4. Calculate VAT to two decimal places
5. Calculate final cost
6. Display purchase details

#### **REFINEMENTS**

2. Calculate total cost of purchases
  - 2.1 Total cost = 0
  - 2.2 Loop for number of items being purchased
    - 2.3 Get item price
    - 2.4 Update Total cost
    - 2.5 Next item



Tasks		Evidence required
1	Refine the following parts of the algorithm: <ul style="list-style-type: none"> <li>• Get valid type of customer (step 3)</li> <li>• Calculate VAT to two decimal places (step 4)</li> <li>• Calculate final cost (step 5)</li> </ul> (NOTE: <i>all refinements must include an algorithm and not simply use a feature of an event-driven language.</i> )	Pseudocode for steps 3, 4 and 5
2	Create a program that matches your design.	Listing of program
3	<ul style="list-style-type: none"> <li>• Complete the test data table below, adding a third set of test data that will test your validation.</li> <li>• Test your program using your test data.</li> </ul>	Completed version test data table Printed output

Test Data Table		Name:					
Test Number	No of Items	Price of Items (£)	Staff or Pupil	Expected VAT (£)	Expected Final Cost (£)	Actual VAT (£)	Actual Final Cost (£)
1	3	0.50 0.75 0.45	P	0.00	1.70		
2	5	0.25 0.50 0.75 0.85 0.45	S				
3							

## Part 2

Dave the IT technician is going to create a presentation to promote healthy eating in the school cafeteria.

He requires a multimedia computer system and a digital camera to capture images of healthy food. A large LCD panel is required for the cafeteria so customers can view the presentation.

He has been given a budget of £1600 for the hardware.



Tasks		Evidence requests
1	<ul style="list-style-type: none"><li>Identify <b>one</b> desktop computer and <b>one</b> laptop computer that cost approximately the same that could be used for the task.</li><li>State the <i>speed of processor</i>, <i>backing storage capacity</i>, <i>main memory capacity</i> and cost for each system.</li><li>Recommend the system that should be chosen, justifying your choice.</li></ul>	Report and printouts/photocopies of source material (Websites/magazine pages).
2	<ul style="list-style-type: none"><li>Identify <b>two</b> digital cameras that could be purchased.</li><li>State the <i>resolution</i>, <i>cost</i> and one other feature of each.</li><li>Recommend the digital camera that should be chosen, justifying your choice.</li></ul>	
3	<ul style="list-style-type: none"><li>Identify <b>two</b> different LCD panels that could be purchased.</li><li>State the <i>resolution</i>, <i>size</i> and <i>cost</i> of each.</li><li>Recommend the LCD panel that should be chosen, justifying your choice.</li></ul>	

## **Section 3**

### **Marking guidelines**

# Marking guidelines

Name \_\_\_\_\_

Date \_\_\_\_\_

Topic	Out of	Mark	Comment
<b>Part 1</b>			
<b>Refine the algorithm</b>	Validation of customer type (step 3)	2, 1, 0	
	Calculate VAT (step 4)	1, 0	
	Calculate final cost (step 5)	1, 0	
<b>Implementation</b>	Use of loop in step 2	1, 0	
	Calculate cost of purchases	1, 0	
	Get valid customer type	2, 1, 0	
	Calculate VAT to two decimal places	2, 1, 0	
	Calculate final cost	1, 0	
	Implementation matches given algorithm	1, 0	
<b>Testing</b>	Suitable test data for third test	1, 0	
	Program tested using information in completed test data table	2, 1, 0	
<b>Part 2</b>			
<b>Task 1</b>	Identify one desktop and one laptop computer system that cost approximately the same	1, 0	
	State characteristics	1, 0	
	Recommend and justify your choice of computer system in terms of the characteristics (comparison cannot be based on cost)	2, 1, 0	
<b>Task 2</b>	Identify two digital cameras	1, 0	
	State characteristics	1, 0	
	Recommend and justify your choice of digital camera in terms of the characteristics	2, 1, 0	
<b>Task 3</b>	Identify two LCD panels	1, 0	
	State characteristics	1, 0	
	Recommend and justify your choice of LCD panel in terms of the characteristics	2, 1, 0	
<b>Stays within budget</b>	Total price of hardware is within £1600	1, 0	
<b>Report complete</b>	All evidence is in place	2, 1, 0	
<b>Overall total</b>		<b>30</b>	

Notes: where marks are allocated as 2,1,0:

2 = achieved without assistance

1 = achieved partially without assistance, or completed with some assistance or hints

0 = not achieved or completed only with significant assistance

## **Section 4**

### **Advice on recording and retention of evidence**

## **Advice on recording and retention of evidence**

For each candidate, the following evidence should be retained for possible verification by SQA:

- 1 written reports, program designs, program listings, hard copies and other evidence as detailed in the Coursework task
- 2 completed marking grid.

The summary form overleaf may be copied for each candidate undertaking the Intermediate 2 Computing Course.

### Candidate assessment summary

Name \_\_\_\_\_ Year of presentation \_\_\_\_\_

Centre \_\_\_\_\_ Candidate number \_\_\_\_\_

### Unit assessment

Unit title	Software Development		Date passed	Initials
	Mark			
	1 <sup>st</sup> attempt	2 <sup>nd</sup> attempt		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

Unit title	Computer Systems		Date passed	Initials
	Mark			
	1 <sup>st</sup> attempt	2 <sup>nd</sup> attempt		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

Unit title			Date passed	Initials
	Mark			
	1 <sup>st</sup> attempt	2 <sup>nd</sup> attempt		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

### Course assessment

	Mark	Date completed	Initials
Coursework task (out of 30)			
Estimate examination mark (out of 70)			
Total (out of 100)		<b>Teacher/Lecturer signature</b>	
Estimate grade			