MARK SCHEME

Sample Assessment Material
GCSE (9-1) COMPUTER SCIENCE
Component 2: Computer Programming

Q		Answer	Mark	AO1	AO2	AO3	Total
1.		**Award marks where indicated for a screenshot showing:**					4
	(a)	Failed login screen message (1) (incorrect username & incorrect password (1))	2		2		
	(b)	Correct login screen message (1) (correct username & password from provided file: i.e. admin WJEC2020 (1))	2		2		
2.		**Award one mark for each code reference line in the ExamAnswers document:**					3
	(a)	Boolean declaration or use line from Python	1		1		
	(b)	For loop or do while loop or other iteration from Python	1		1		
	(c)	Selection (if statement or other) from Python	1		1		
3.		Award **one** mark for each correct location of annotation (1 line above, below or to the right of the line) up to a maximum of four.	4		4		8
		Award **one** mark for describing each example up to a maximum of four.	4		4		
		Indicative content for each example:					
	(a)	`#Declares the function which draws the GUI user interface to the screen.`					
	(b)	`#Sets the initial value of gross_pay to 0 to prevent calculations on a None or Null value`					
	(c)	`#Writes the information to a text file called "Staff.txt"`					
	(d)	`#uses TKINTER to draw a command button on the screen with the caption "back"`					

Q	Answer	Mark	AO1	AO2	AO3	Total
4.	Award **one** mark for each correct concept designed in pseudo-code (Pseudo-code syntax and examples are provided in the subject specification)					6
	• Declare variables	1		1		
	• Use of MID string handling	1		1		
	• If statement (selection to look for numbers) OR ASCII	1		1		
	• Use of flag to prevent multiple messages	1		1		
	• Output message if string is invalid	1		1		
	• Fully correct algorithmic logic	1		1		
	Annotation is not required but provided for clarity. **Indicative content:**					

```
firstName is string
error is Boolean
set error = FALSE

output "Please enter firstname"
input firstName

for i = 1 to len(firstName)
        {get the length of the
string}
 for j = 0 to 9

  if VAL(MID(firstName,i,1)) = j then
   error = TRUE
  end if
 next j
next i

if error = TRUE then
 output "Numeric value found"
end if
```

Q	Answer	Mark	AO1	AO2	AO3	Total
5.	Award **one** mark for each correct concept designed in pseudo-code (Pseudo-code syntax and examples are provided in the subject specification)					5
	• declare variables • input gross pay • calculate student loan (gross pay * 0.1) • calculate net pay (gross pay – student loan) • correct outputs (student loan & net pay)	1 1 1 1 1			1 1 1 1 1	
	Indicative content: ``` grossPay is real studentLoan is real netPay is real output "Please enter the gross pay" input grossPay studentLoan = grossPay * 0.1 netPay = grossPay – studentLoan output "Student loan repayment is:" studentLoan output "Net pay is:" netPay ```					

Q	Answer	Mark	AO1	AO2	AO3	Total
6.	Award **one** mark for each bulleted item listed below.					22
(a) (b)	• New form exists (does not require title name or content.)	1			1	
	• New form has a title or label	1			1	
	• Title on form reads "Add pupil record"	1			1	
(c)	• Data entry or textbox allowing typing for the following: Pupil ID First name Surname Form class Date of birth	1			1	
	• label for each of above	1			1	
	• intuitive layout (not overlapping or at random on form)	1			1	
(d)	• Button on form for "Back" any valid title/label e.g. "HOME"	1			1	
	• Button returns user to main menu	1			1	
(e)	• Validation check (presence) on Pupil ID	1			1	
	• Sensible message pops up when no data entered / OR on save	1			1	
(f)	• Button on form for "Save" any valid title/label e.g. "SAVE"	1			1	
	• Button initiates save routine	1			1	
	• Standard data saved from form into text file (examiner to enter standardised test data provided by WJEC)	1			1	
(g)	One mark for each section for code that is fully functional and allows:					
	• acceptance of name with no numeric data	1			1	
	• rejection of name with numerical data	1			1	
	• suitable output message on validation failure	1			1	
(h)	Annotation within Python file for following:					
	• Creating new form code/GUI has annotation	1		1		
	• File handling code has annotation	1		1		
	• Presence check code has annotation	1		1		
	• Back to main menu button/code has annotation	1		1		
	• Annotation that explains the check for a numeric	1		1		
	• annotation of the error message	1		1		

Q	Answer	Mark	AO1	AO2	AO3	Total
7.	Award **one** mark for each successfully carried out test below.					5
(a)	• Screenshot in ExamAnswers of suitable message on screen (popup box or message on from) stating pupil ID validation error (e.g. "Must enter Pupil ID or Pupil ID cannot be blank." etc.)	1		1		
(b) (i)	• Screenshot of Python form with details from QP filled.	1		1		
(ii)	• Screenshot including confirmatory message.	1		1		
(iii)	• Screenshot of text file (1) with details from QP saved (ignore other data present from testing) (1).	2		2		
8.						10
(a) (i)	Award one mark for a correct change within the Python program (ParkWoodSchool.py) of tax rate from 0.2 to 0.22 (OR percentage method).	1			1	
(ii)	Award **one** mark for annotation around the tax calculation code. Must be line above, same line or line below.	1		1		
	Award **one** mark for suitable description of tax value Exemplar: #Tax rate changed from 0.2 to 0.22 as per client requirement	1		1		
(b) (i)	Award **one** mark for change within Python program (ParkWoodSchool.py) of national insurance rate from 0.8 to 0.85 (OR percentage method)	1			1	
(ii)	Award **one** mark for annotation around the national insurance calculation code. Must be line above, same line or line below.	1		1		
	Award **one** mark for suitable description of tax value Exemplar: #Tax rate changed from 0.8 to 0.85 as per client requirement	1		1		
	Allow follow through from Q5.					
(c) (i)	New code within Python program (ParkWoodSchool.py) of student loan **one** mark for correct location(before deductions) **one** mark for correct new figure.	1 1			1 1	
(ii)	**One** mark for annotation around the new student loan calculation code. Must be line above, same line or line below.	1		1		
	One mark for suitable change for the gross pay line e.g. #Student loan charge added to gross pay	1		1		

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9. (a)	Award **one** mark for each correct concept programmed in python.
	
	• Defining a switcher (Case statement)
	• Setting the array (dict)
	• Outputting the full name.
	
	Exemplar answer/indicative content:
	
	``python
	def switch_demo(argument):
	    switcher = {
	        1: "No username",
	        2: "No password",
	        3: "No username and password
	entered",
	    }
	    print switcher.get(argument, "Login
	failed")
	``
		
		1
		1
		1
					
					1
					1
					1
						5

(b)	Award up to **two** marks for describing how the code is refined (fewer statements/more efficient to execute/easier to read/faster to execute).	2		2		
10.	Award **one** mark for each correct calculation result in the screenshots within the answer document using the following table.	6		6		6

Gross Pay	Tax	National insurance	Pension Contribution	Student Loan	Deductions	Net Pay
1850	407	259	148	185	999	851

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11.		**Award marks according to the band described below.** Candidates should include the following: Two refinements that the candidate states are successful. Explanations of how the code achieves these refinements. Consideration of how the final program could be improved upon, for example: • Validation • User Interface • Extensibility	6			6	6

Band	AO3.2c (Max 6 marks)
3	**5 - 6 marks** The candidate has: • shown strong understanding of the requirements of the question and a clear knowledge of the indicative content. Clear knowledge is defined as a response that provides five to six relevant detailed points from the indicative content • shown a sustained line of reasoning which is coherent, relevant, substantiated and logically structured • used appropriate terminology and accurate spelling, punctuation and grammar.
2	**3 - 4 marks** The candidate has: • shown some understanding of the requirements of the question and sound knowledge of the indicative content. Sound knowledge is defined as a response that provides three to four relevant detailed points from the indicative content • shown a line of reasoning which is partially coherent, largely relevant, supported by some evidence and with some structure • used mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.
1	**1 - 2 marks** The candidate has: • shown limited understanding of the requirements of the question and superficial knowledge of the indicative content. Superficial knowledge is defined as a response that provides one to two relevant points from the indicative content • shown a basic line of reasoning which is not coherent, largely irrelevant with very little structure • used limited scientific terminology and inaccuracies in spelling, punctuation and grammar.
0	**0 marks** No attempt made or no response worthy of credit.