MEMORANDUM

Question 1 (TRUE or FALSE) **[5]**

State whether the following statements are TRUE or FALSE

	Statements	Answer
1.1	When you solve problem using IPO table, you always start by finding the output.	**TRUE**
1.2	IPO is short for Input → Proper → Output.	**FALSE**
1.3	To calculate the average of Jim's weekly wage of the past 3 weeks, the following statement applies: ***rAverageWage = rWage1 + rWage2 + rWage3 / 3***	**FALSE**
1.4	Comments may only be included at the beginning of an algorithm.	**FALSE**
1.5	The name of the variable should describe the content of the variable.	**TRUE**

Question 2 (MULTIPLE CHOICE) **[5]**

Select the correct answer for the following questions.

2.1	How many values can a variable store at one time? A. 1 B. 2 C. 5 D. 10
2.2	Which of the following statements is correct? A. Fixed values are dependent on the user. Variable values are dependent on the program. B. Fixed values are dependent on the program. Variable values are dependent on the program. C. Fixed values are assigned by the program. Variable values are dependent on the user. D. Fixed values are dependent on the user. Variable values are dependent on the user.
2.3	What is a variable? A. A number B. A place in memory that holds a data value that changes. C. A data value that changes. D. A place in memory that stores labels.

2.4	The correct statement (processing) to calculate the total number of eggs (iNumEggs) , when the number of dozens of eggs (iNumDoz) is provided. A. iNumEggs=iNumDoz*12 ✓ B. iNumEggs=iNumDoz/12 C. iNumEggs=[iNumDoz/12] D. iNumEggs=iNumDoz%12
2.5	You need to write a program to calculate the cost of flour in rands based on the weight. The price per kg is R20. Each customer will need to provide the number of kg they need to buy. What will be the input and output: A. 20 and The total cost of flour B. The cost per kg and the total cost of flour C. The number of Kgs and 20 D. The number of kgs and the total cost of flour ✓

Question 3 **[4]**

Write pseudo code statements for each of the following using the given variable names printed in italics:

3.1 Increase the value of the variable ***rAmount*** by 15%. (1)

rAmount = rAmount + rAmount * 15 / 100 ✓

rAmount = rAmount * 1.15

Commented [TAM1]: Maybe we can add this formula just as an optional

3.2 Pretty earns R24 per hour and works ***iNumHours*** per week. She must pay 32% of the amount that she earns for her room and meals. How much money is left for her to spend? Save this answer in the variable ***rPrettyMoney***. (3)

rIncome = iNumHours * 24 ✓

rExpenses = rIncome * 0.32 ✓

rPrettyMoney = rIncome − rExpenses ✓

Question 4 (IPO table) **[10]**

Write only the IPO table, list the variables (description and variable names) and then indicate the input, output and intermediate variables, as well as the processing statements to solve the following problem:

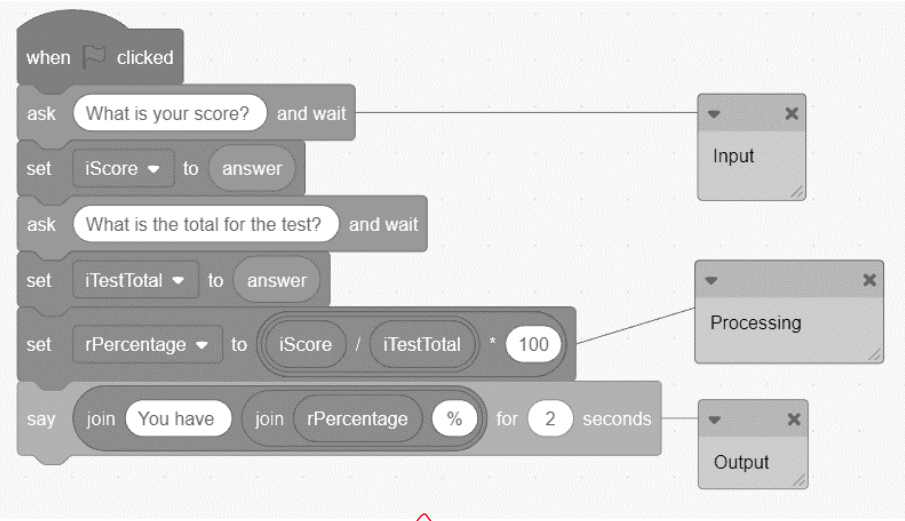
Dumisani Bookstore sells Java programming textbooks to first year students. There are 1000 books in the store. The cost price of a book must be entered as well as the number of books that he sold. The selling price is 55% more than the cost price. Calculate the amount received after the books were sold and calculate the profit.

Declare the number of books in the store and the given percentage as constants. You may assume that it will be a profit and not a loss.

Input	Processing	Output
Constants Number of books in the store (BOOKS_IN_STORE = 1000) Percentage mark up (PERC_MARKUP = 15) **Unknown** Cost price of one book (rCostPrice) Number of books sold (iBooksSold)	rSellingPrice = rCostPrice + rCostPrice * PERC_MARKUP/100 rTotalCost = BOOKS_IN_STORE * rCostPrice rRevenue = iBooksSold * rSellingPrice rProfit = rRevenue - rTotalCost	Amount received (rRevenue) Profit (rProfit)

Question 5 (ALGORITHM) **[6]**

Rewrite the following Scratch program as an algorithm in pseudocode.



when the user clicks the green flag

    //Input

    ask "What is your score? "

    enter iScore

    ask "What is the total for the test? "

    enter iTestTotal

    //Processing

    rPercentage = iScore / iTestTotal * 100

    //Output

    display "You have " + rPecentage + "%"

end

Indenting

Question 6 **[5]**

The following algorithm attempts to calculate and display the area of a rectangle. The length and the width in cm are provided by the user. This algorithm contains errors. Indicate all errors by correcting it on the code.

when user clicks green flag

//ask "What is the length of the rectangle? "

enter lenth length

ask "What is the width of the rectangle? "

enter rWidth

rArea = (2*rLength + 2*rWidth) rLength * rWidth

display "The area of the rectangle is " + "rArea" + " square cm"

stop end rArea