**Discussion 1**

The following Pseudocode read in 10 students’ scores and calculate the average.

Initialize student\_counter to zero

While student\_counter is less than or equal to ten

Input the next score

Add the score into the total

EndWhile

Set the class average to the total divided by ten

There are some errors in the above Pseudocode. Please indicate where the errors are and how to correct them.

Initialize student\_counter to one

Initialize total to zero

While student\_counter is less than or equal to ten

Input the next score

Add the score into the total

Add student\_counter with 1

EndWhile

Set the class average to the total divided by ten

**Discussion 2**

Fill in the blanks to complete the following Pseudocode to read in 10 students’ scores and calculate the number of passes and failures.

Initialize passes to zero

Initialize failures to zero

Initialize student\_counter to one

While student\_counter is less than or equal to ten

Input the next score

if the student failed:

Add 1 to failures

else:

Add 1 to passes

endif

add one to student\_counter

EndWhile

Print passes to show the number of people who passed

Print failures to show the number of people who failed

**Discussion 3**

Write the FizzBuzz algorithm using pseudocode.

FizzBuzz is a standard interview problem. The Problem state:

* Write a code that prints each number from 1 to 20 on a new line.
* Print “Fizz” if the number is the multiple of 3.
* Print “Buzz” if the number is multiple of 5
* For number which is multiple of both 3 and 5 print “FizzBuzz”

The ***sample run*** is as follows:

1

2

Fizz

4

Buzz

Fizz

7

8

Fizz

Buzz

11

Fizz

13

14

FizzBuzz

16

17

Fizz

19

Buzz

**Pseudocode:**

Create a FOR loop, with a variable a and a range falling between 1 and 21:

if a is a multiple of 3 and 5:

PRINT FizzBuzz

elIf a is a multiple of 3:

PRINT Fizz

elif If a is a multiple of 5:

PRINT Buzz

else:

PRINT a

num: 1

FOR num -> 1 to 20:

If num MOD 15 == 0

PRINT “FizzBuzz”

Else if num MOD 5 == 0

PRINT “Buzz”

Else if num MOD 3 == 0

PRINT “Fizz”

Else

Print num

Endif

Endfor

**Actual code**

for a in range(1,21):

if a % 3 == 0 and a % 5 == 0:

print("FizzBuzz")

elif a % 3 == 0:

print("Fizz")

elif a % 5 == 0:

print("Buzz")

else:

print(a)

**Discussion 4**

For each of the following, discuss what the outcome will be if they are executed by a Python interpreter (e.g.IDLE3) in the sequence shown.

**c = 10 => It is an assignment, not equal**

**7 = a => LHS cannot start with number**

**a = d => d is not defined, hence wrong**

**a = c + 1 => correct**

**a + c = c => invalid**

**3 + a => this is an expression**

**7up = 10 => incorrect, as code starts with a number**

**import = 1003 => import is a keyword**

**b = math.pi \* c => need to import math**

**int = 500 = int is not a keyword in python**

**a \*\* 3 => possible**

**a,b,c = c,1,a =>**

**b,c,a = a,b**

**c = b = a = 7**

**print( A ) Error**

**print( "b\*b + a\*a = c\*c" )**

**print( ‘A’ ) A (valid)**

**print( "c" = 1 )Error ( Invalid, we cannot assign 1 to c and then do print ina a single python statement)**

**Discussion 5**

Write a program that asks the user for the number of boys and that of girls in a class. The program should calculate and display the percentage of boys and girls in the class. A sample run is as follows:

**Enter the number of boys: 65**

**Enter the number of girls: 77**

**Boys: 46%**

**Girls: 54%**

1. Design the algorithm and use flowchart to present.
2. Write the Python program.
3. **Algorithm planning**

1. INPUT the total number of boys in the class.
2. INPUT total number of girls in the class.
3. ADD the number of boys and number of girls together to get the total
4. DIVIDE the number of boys by the total, and multiply the result with 100. This is the percentage of boys in the class.
5. DIVIDE the number of girls by the total, and multiply the result with 100. This is the percentage of girls in the class.
6. PRINT the percentage of boys
7. PRINT the percentage of girls

**Flowchart**

INPUT number of boys

Start

End

PRINT the percentage of girls.

INPUT number of girls

PRINT the percentage of boys.

ADD the number of boys and the number of girls together to get the total

Divide the number of girls by the total, and multiply the result with 100. This is the percentage of girls.

Divide the number of boys by the total, and multiply the result with 100. This is the percentage of boys.

number\_of\_boys = int(input(“Enter the number of boys: “))

number\_of\_girls = int(input(“Enter the number of girls: “))

total = (number\_of\_boys) + (number\_of\_girls)

percentage\_boys = (number\_of\_boys / int(total)) \* 100

percentage\_girls = (number\_of\_girls / int(total)) \* 100

print(f“Boys: {percentage\_boys}%”)

print(f“Girls: {percentage\_girls}%”)