# 1. Write pseudocode for a program that prompts a user to enter their name. If the name is “Hazel” then output “Hello Hazel”. If the name is not Hazel, output “We haven’t met, ” name, “ pleased to meet you.”

name = input("enter your name")

if name == "Hazel then

    print("Hello Hazel")

else

print("We haven't met,", name, "pleased to meet you")

endif

# [4]

# 

# 2. Complete the following pseudocode for a program that prompts the user to input a temperature reading and humidity reading. If the temperature is greater than 25 or humidity is greater than 50% and window is closed, then output a message “Open the window”. If the temperature is below 10, the humidity is below 50% and the window is not closed, output a message “Close the window”.

temp = input("enter the temperature")

humidity = input("enter humidity")

if window == "closed" and ((temp > 25) or (humidity > 50)) then

    print("open window")

elseif (temp < 10) and (humidity < 50) and window == "not closed" then

print("close the window")

endif

# [4]

# 3. A pseudocode program that measures pH levels is shown below. The pH scale runs from 0 to 14. Read the code below and complete the trace tables with the values given.

pH = 0

pH = input(“Enter pH level: ”)

if pH > -1 AND pH < 7 then

print(“pH is acidic”)

else if pH == 7 then

print(“pH is neutral”)

else if pH > 7 and pH < 15 then

print(“pH is basic”)

else

print(“Error... enter a number from 0 to 14”)

endif

Complete the trace tables below with the values -1, 0, 7, 14 and 15. [5]

|  |  |
| --- | --- |
| **pH** | **Output** |
| -1 | Error… enter a number from 0 to 14 |
|  |  |
| **pH** | **Output** |
| 0 | pH is acidic |
|  |  |
| **pH** | **Output** |
| 7 | pH is neutral |
|  |  |
| **pH** | **Output** |
| 14 | pH is basic |
|  |  |
| **pH** | **Output** |
| 15 | Error… enter a number from 0 to 14 |

4. Complete the following pseudocode program. [4]

The program prompts the user to select a choice

A: Multiply

B Divide

C Add

D Subtract

E Remainder Division *(use the mod function for this)*

The program will then prompt the user to enter two numbers and perform the chosen operation. The answer should then be printed to the screen. If the user does not enter a valid choice, output a message “You did not enter a valid choice”.

Use a switch/case statement for this task.

print(“Select one of the following options: ”)

print(“Enter A for Multiply: ”)

print(“Enter B for Divide: ”)

print(“Enter C for Add: ”)

print(“Enter D for Subtract: ”)

print(“Enter E for Remainder Division: ”)

*n1 = input()*

*n2 = input()*

*switch:*

*case “A”: print(n1 \* n2)*

*case “B”: print(n1/n2)*

*case “C”: print(n1 + n2)*

*case “D”: print(n1-n2)*

*case “E”: print(mod(n1, n2))*

*default: print(“You did not enter a valid choice”)*

5. The following pseudocode is designed to output a message to say whether a particular year input by the user is a Leap Year.

(i) Add statements to complete the algorithm. Ask the user to input a year, and display a message to indicate whether or not the year input by the user is a Leap Year; e.g. “2015 is not a Leap Year”. [3]

*Year = int(input())*

LeapYear = FALSE

if (mod(Year, 4) == 0) then

LeapYear = TRUE

endif

if (mod(Year,100) == 0) then

LeapYear = FALSE

endif

if (mod (Year,400) == 0) then

LeapYear = TRUE

endif

*if LeapYear == TRUE then*

*print(Year, “is a Leap Year”)*

*else*

*print(Year, “is not a leap Year”)*

*endif*

(ii) Why is it necessary to include the statement

LeapYear = FALSE

near the start of the program?

You need to create the variable first outside the conditionals, if you make it inside the conditional (if statements), you end up making a local variable which results in syntax error since the variable, due to being local, can only be used in the conditional you made it in. [1]

(iii) Complete the following table of test data and expected results. [4]

|  |  |
| --- | --- |
| **Year** | **Expected output** |
| 1800 | 1800 is not a Leap Year |
| 1986 | 1986 is not a Leap Year |
| 2000 | 2000 is a Leap Year |
| 2016 | 2016 is a Leap Year |

[Total 25 Marks]