# Homework 2 Selection

# 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.” [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”.

OUTPUT “Enter the temperature”

temp 🡨 USERINPUT

OUTPUT “Enter the humidity”

 humidity 🡨 USERINPUT

IF window = “closed” THEN

 *(add statements here)* [4] 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

OUTPUT “Enter pH level”

pH 🡨 USERINPUT

IF pH > -1 and pH < 7 THEN

 OUTPUT “pH is acidic”

ELSE IF pH = 7 THEN

 OUTPUT “pH is neutral”

ELSE IF pH > 7 and pH < 15 THEN

 OUTPUT “pH is basic”

ELSE

 OUTPUT “Error... enter a number from 0 to 14”

ENDIF

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

|  |  |
| --- | --- |
| **pH** | **Output** |
| -1 |  |
|  |  |
| **pH** | **Output** |
| 0 |  |
|  |  |
| **pH** | **Output** |
| 7 |  |
|  |  |
| **pH** | **Output** |
| 14 |  |
|  |  |
| **pH** | **Output** |
| 15 |  |

 [5]

4. Complete the following pseudocode program.

 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 CASE statement for this task.

OUTPUT “Select one of the following options”

OUTPUT “Enter A for Multiply”

OUTPUT “Enter B for Divide”

OUTPUT “Enter C for Add”

OUTPUT “Enter D for Subtract”

OUTPUT “Enter E for Remainder Division”

*add statements here* [4]

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]

*(add statements here to ask use to input a Year)*

LeapYear 🡨 FALSE

IF (mod(Year, 4)=0) THEN

 LeapYear 🡨 TRUE

END IF

IF (mod(Year,100) = 0 THEN

 LeapYear 🡨 FALSE

END IF

IF (mod (Year,400)) = 0 THEN

 LeapYear 🡨 TRUE

END IF

*(add statements here to output appropriate message)*

 (ii) Why is it necessary to include the statement

 LeapYear 🡨 FALSE

 near the start of the program? [1]

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

|  |  |
| --- | --- |
| **Year** | **Expected output** |
| 1800 |  |
| 1986 |  |
| 2000 |  |
| 2016 |  |

[4]

[Total 25 Marks]