# Worksheet 2 Selection

**Task 1**

a. Evaluate the following expressions, given that a = 3, b = 4 and c = 12

(i) (a > b) OR (b < c)

(ii) (b > c) OR (b > a)

(iii) NOT (a > b)

(iv) (NOT (a > b)) AND (c > b)

(v) (a \* b > c) AND (a = c / b)

b. Write pseudocode for a program which ask a multiple choice quiz question, e.g. “What is the world’s largest ocean?”. It then gives 3 possibilities numbered 1, 2 and 3 and asks the user to enter 1, 2 or 3. An appropriate response is then output.

c. The cost of posting a small parcel of up to 1kg is is $4.40. The cost for a parcel weighing more than 1kg, but less than or equal to 2kg, is $6.55.

 Draw a flowchart to allow the user to input the weight of the parcel and calculate and output the cost of postage. If the user enters a weight greater than 2kg, display a message “This is not a small parcel” and end the program.

 Write the equivalent pseudocode for this algorithm.

d. Complete the table below to show **five** sets of test data you could use to thoroughly test your algorithm, and the expected result each time. Do not include invalid input data, since this section of pseudocode does not include a validation routine.

|  |  |  |
| --- | --- | --- |
| **Test number** | **Parcel weight** | **Expected output** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |

**Task 2**

Nazim wants to create a game of scissors, paper, stone. In this game two people simultaneously make their hand into a shape representing scissors, paper or stone. Scissors cuts paper, so wins. Paper wraps stone, so wins. Stone breaks scissors, so wins.

Nazim starts by generating 2 random numbers between 1 and 3 to represent the three possibilities, and assigning them to scissors (1), paper (2) or stone (3).

Complete the pseudocode algorithm to show the output for each player, (Scissors, Paper or Stone) and “Player1 wins” or “Player 2 wins” as appropriate.

 Hand1 🡨 random(1,3)

 Hand2 🡨 Random(1,3)

 CASE OF Hand1

 1: Player1 🡨 “Scissors”

 2: Player1 🡨 “Paper”

 3: Player1 🡨 “Stone”

 ENDCASE

 CASE OF Hand2

 1: Player2 🡨 “Scissors”

 2: Player2 🡨 “Paper”

 3: Player2 🡨 “Stone”

 ENDCASE

 IF Player1 = “Scissors” THEN