Name: Class:

Task 1

1. Write a single selection statement in pseudocode to do the following:

If the temperature is greater than 30, output “Too hot”.

If the temperature is between 21 and 30, output “Just right”

Otherwise output “A bit chilly”

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2. The following pseudocode calculates the amount of postage for a parcel.

if size == "letter" AND weight <= 100 then

price = 1.65

endif

if size == "large letter" then

if weight <= 100 then

price = 1.95

elseif weight <= 250 then

price = 2.37

else

price = 2.81

endif

endif

(a) Add a line of code at the beginning and end of this algorithm so that it is only executed if type == "first-class"

(b) What is the price of a large letter weighing 150gms, using first-class post?

(c) What is the price of a large letter weighing 30gms?

(d) What is the maximum weight for a letter?

(e) Draw a box around the nested if statement in the code.

Task 2

1. A machine dispensing drinks accepts 10p, 20p, 50p and £1 coins. Drinks cost £1.50 each. When a customer has inserted sufficient coins, the machine dispenses a drink and gives change if the total amount in coins exceeds £1.50.

(a) Complete the flowchart for this process.

Start

INPUT coinValue

dispenseDrink()

OUTPUT change

total = 0

total = total + coinValue

(b) Is this an efficient algorithm for the process? Have all factors been taken into account?

Suggest how it could be improved and incorporate your changes into the flowchart.

**Task 3**

1. What value is returned by each of the following calls of the random function?

(a) random(5,10)

(b) random(3.0,4.5)

(c) random(−5, -3)

(d) random(−2, 1)

2. Write pseudocode for a program which simulates throwing two dice and then outputs the number on each die and the total of the two dice.

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Extension task

3. Write a pseudocode algorithm to score a throw of two dice. The throw of the dice should be simulated using a random number generator.

The rules are as follows:

A player throws two dice.

If the faces on the two dice are different, the score is the sum of the faces.

If the two faces are the same, the score is doubled, unless the throw is a double six, in which case the score is zero.

Print out the values of the two dice along with the final score.

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