**Pseudocode Questions 1**

1. A brick length must be greater than 15 and less than 50. Using pseudocode or a programming language of your choice, show how input validation could be used to ensure a valid brick length is entered by the user. (3)

2. Jack has been asked to design a program to calculate the potential profit in a soft drink business. The program will store the costs involved in producing and selling one litre of each drink. The following calculations will be used to output the profit made for each litre of drink.

 **Manufacturing Cost = Water Cost + Flavouring Cost + Labour Cost**

 **Profit = Selling Price – Manufacturing Cost**

Using pseudocode or a programming language of your choice, write a program to enter the required data, then calculate and display the profit for the soft drink business. (5)

3. An athlete is developing a mobile application (app). The app will allow athletes to track weight in Kg. Part of the pseudocode for this app is shown below.

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Line 15 SEND “Enter your new weight” TO DISPLAY

Line 16 RECEIVE newWeight FROM (REAL) KEYBOARD

Line 17 IF newWeight > previousWeight [counter] THEN

Line 18 SEND [“You have gained weight”] TO DISPLAY

Line 19 END IF

Line 20 SET previousWeight [counter] TO newWeight

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(a) (i) Identify the line that includes a condition. (1)

(ii) Identify the line that stores a value in an array. (1)

(iii) Identify the line that accepts input values into the program. (1)

(b) When the code for the program is written the programmer mis-types the word UNTIL, typing UNTOL instead. State the type of programming error being described above. (1)

4. Line 1. SET total TO 0

Line 2. RECEIVE destination FROM keyboard

Line 3. REPEAT

Line 4. RECEIVE distance FROM keyboard

Line 5. SET total TO total + distance

Line 6. UNTIL distance = 0

The program above stops when the user enters 0. The design is to be improved to display a warning message if the total is greater than 50. Use pseudocode or a programming language of your choice to show how this extra feature could be implemented. (3)

5. The “Files in the Sky” website provides internet-based document storage. Before using the website, a user must set up a new account. The design for the new account input screen is shown below.

Using pseudocode or a language of your choice, show how a program could check that the password entered into textfield7 has at least eight characters. (3)

6. A computer program is used to store a patient’s heart rate each day for a week. The seven readings are stored in an array of real numbers called “bpm”.

Using pseudocode or a programming language of your choice, write a short program to calculate the average heart rate of the patient over the seven days. (3)