# N5 Homework Software Design and Development

**1)** The pseudocode shown below uses a simple condition.

```
IF age < 5 THEN SEND nursery TO DISPLAY
```

Create a complex condition that will display “school” if a person is between the ages of 5 and 18 inclusive. **(2)**

**2)** This pseudocode allows the user to guess the age of a teddy bear to win it in a competition. The user must enter a guess between the age of 1 and 80 inclusive. Complete line 4 of the code. **(3)**

```
Line 1 RECEIVE guess FROM (INTEGER) KEYBOARD
Line 2 REPEAT
Line 3          RECEIVE guess FROM (INTEGER) KEYBOARD
Line 4 UNTIL _____________________________
```

**3)** Pseudocode for a program is shown below:

```
Line 4 SET password TO “h1gh@sch00l”
Line 5 REPEAT
Line 6          SEND “Please enter your password” TO DISPLAY
Line 7          RECEIVE user_guess FROM (INTEGER) KEYBOARD
Line 8 UNTIL password = user_guess
```

a) Explain the purpose of lines 5 to 8 in this pseudocode. **(2)**

b) State the data type of the variable password. **(1)**

**4)** Using a programming language of your choice, rewrite the below lines of code using more efficient constructs. **(5)**

```
Line 1    RECEIVE test_score_1 FROM keyboard
Line 2    RECEIVE test_score_2 FROM keyboard
Line 3    RECEIVE test_score_3 FROM keyboard
Line 4    RECEIVE test_score_4 FROM keyboard
Line 5    RECEIVE test_score_5 FROM keyboard
Line 6    SET score_average TO (test_score_1 + test_score_2 +
          test_score_3 + test_score_4 + test_score_5)/5
Line 7    DISPLAY average TO user
```

**5)** 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)**

**6)** The pseudocode is edited to ensure that the new weight being entered is acceptable.

```
Line 16 REPEAT
Line 17 RECEIVE newWeight FROM (REAL) KEYBOARD
Line 18 UNTIL newWeight > 20 AND newWeight < 70
```

a) State the type of loop shown above. **(1)**
b) State an input **the use**r could enter to enable the program to continue from line 18. **(1)**