(a) Open the program called Question1_A.py from the Teams Assignment and enter your name on line two.

According to a recent report in the Irish Independent (19 August 2019) one in four children and three out of four adults in Ireland are overweight or obese. This causes significant increases in illnesses such as diabetes and heart disease. To determine whether a person is overweight or obese, a measure called the Body Mass index (BMI) can be used.

BMI is defined as body weight (in kilograms) divided by the square of the body height (in metres). If height is given instead in centimetres, then the formula for calculating BMI is:

$$BMI = \frac{weight}{height^2} \times 10000$$

```
1   # Question 16(a)
2   # Examination Number:
3
4   weight = int(input("Enter weight (in kilograms): "))
5   height = 180 # centimetres
6
7   bmi = weight / (height * height) * 10000
8
9   print("BMI is: ", bmi)
10
```

This program is designed to calculate and display the BMI for a person whose weight is entered by the end-user and whose height is 180 cm.

A sample run of the program is displayed below – the user enters a value of 90 (kilograms) for **weight** and the program displays the resulting BMI.

```
Enter weight (in kilograms): 90
BMI is: 27.777777777777778
```

Modify the program to do the following:

(i) Insert a **comment** to say 'read weight' in the appropriate location in the program to show where the weight is input.

(ii) Currently in the program the value of the **variable height is hard-coded to 180**. Modify the program so that it prompts the user to enter a value for height. The value should be converted to an integer.

When the program is run the output may look as follows:

```
Enter weight (in kilograms): 90
Enter height (in centimetres): 180
BMI is: 27.77777777777778
```

(iii) By using the **function round, or otherwise**, modify the program so that the value of the BMI displayed is rounded to one decimal place.

When the program is run the output may look as follows:

```
Enter weight (in kilograms): 90
Enter height (in centimetres): 180
BMI is: 27.8
```

(iv) Modify the program so the welcome message "Welcome to the BMI calculator" is displayed at the start of the program.

When the program is run the output may look as follows:

```
Welcome to the BMI calculator
Enter weight (in kilograms):
```

(v) A BMI number alone might not mean much to the average person. A more meaningful output might be one of the four BMI categories: underweight, normal weight, overweight or obese.

Extend the program so that it displays the BMI category according to the BMI ranges in the table below.

BMI Category	BMI Range
Underweight	less than 18.5
Normal	from 18.5 to 24.9
Overweight	from 25 to 29.9
Obese	greater than or equal to 30

The table below shows the expected BMI values and categories for some sample weight and height values. You could use this data to test your program.

`weight` (kgs)	`height` (cms)	`bmi` (kg/cm^2)	BMI Category
50	165	18.3	Underweight
70	170	24.2	Normal
90	180	27.8	Overweight
90	170	31.1	Obese

When the program is run the output may look as follows:

```
Welcome to my BMI calculator!
Enter weight (in kilograms): 78
Enter height (in centimetres): 180
BMI is:  24.1
Normal
```

Save and close your file before moving on to the next part.