

Computing test

You are free to use the web or look at previous programs that you have written.

Throughout the assessment I will be looking to award 5 extra bonus marks for well documented code that has lots of comments.

- 1) Write a program that outputs the following poem. Name the program: *Q1_Poem* [4 marks]

What is this life, if full of care,
We have no time to stand and stare.
Underneath the apple boughs
And stare as long as sheep and cows.

```
print("What is this life, if full of care,")  
print("We have no time to stand and stare.")  
print("Underneath the apple boughs")  
print("And stare as long as sheep and cows.")
```

- 2) You are working for a software company and you have been asked to write a program by your manager that asks a user for input in metres and converts that number into feet and outputs the result. There are 3.28 feet in a metre.

- a) Decompose the problem into input, process and output. [2 marks]

Input: length in metres

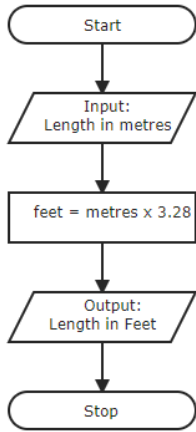
Process: $\text{feet} = \text{metres} \times 3.28$

Output: length in feet

- b) Draw the flow diagram [3 marks]

Name: _____

/28



c) Write down the pseudo code [2 marks]

```

metres ← USER_INPUT()
feet ← metres * 3.28
OUTPUT feet
  
```

d) Write the program in Python. Name the program: Q2_cm2inches

[4 marks]

```

metres=int(input("Enter length in metres:"))
feet=metres*3.28
print("Length in feet is", feet)
  
```

3) a) Without writing the program down, what does the following program output? [2 marks]

```

x=3
while (x<20):
    print ("Number", x)
    x=x+3
  
```

Answer:

3, 6, 9, 12,15,18

b) Modify the program above to print out the following sequence of numbers. Name the program: Q3_sequence

7 15 23 31 39 47 55

Name:

/28

[4 marks]

```
x=7  
while (x<56):  
    print ("Number", x)  
    x=x+8
```

- 4) Google's driverless car software needs to be able to control what the car does at a traffic light. Write a program that gives the instruction for the car to stop when the light is red and go when the light is green. Hint use if statements. Name the program: *Q4 car* [4 marks]

- 5) Rewrite program 2 using a function [3 marks]

```
def length_conversion():  
    feet=metres*3.28  
    return feet
```

```
metres=int(input("Enter length in metres: "))  
feet=length_conversion(metres)  
print("Length in feet is", feet)
```