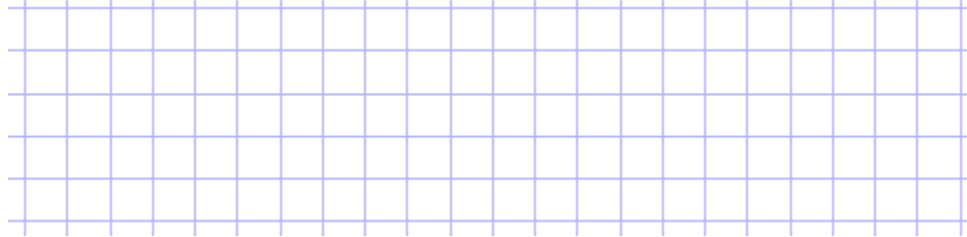# Grade Eight Computers: Coding Assessment

1. For each of the following, write a Python code using the proper syntax.

   a. Display the text, "Welcome to your final coding assessment at GAA!" (1 mark)

   b. Have a user input their name and the year he/she was born using two separate variables. (2 marks)

   c. Display the message, "Coding is almost done" 25 times using five or less lines. (2 marks)

   d. Complete line 3 in order to display the proper kinetic energy. (1 mark)

```
1    m=100
2    v=10
3    k=
4    print ("The kinetic energy of a person with a mass of",m,"kg and running
     at a speed of",v,"m/s is",k,"Joules.")
```

   3 k=_____

   Hint: kinetic energy is calculated using the formula

$$E_k = \frac{1}{2}mv^2$$

```
>
The kinetic energy of a person with a mass of 100 kg and running at a speed of 10 m/s is 5000.0 Joules.
>
```

2. Examine the following code:

```
1    name=input("Please enter your name: ")
2    birth=input("please enter the year you were born: ")
3    age=2018-birth
4    print("Hi ",name,".  By the end of the year you will be",age,"years old.")
```

The programmer is expecting to see the following result:

```
Please enter your name:  Shannah
please enter the year you were born:  2004
Hi  Shannah .  By the end of the year you will be 14 years old.
```

Instead, the programmer receives this error message:

```
Please enter your name:  Shannah
please enter the year you were born:  2004
Traceback (most recent call last):
  File "python", line 3, in <module>
TypeError: unsupported operand type(s) for -: 'int' and 'str'
```

How should line 2 be coded to achieve the desired result? (2 marks)

3. Display the 13 times table (from 1 to 13) using a loop and five or less lines of code. (2 marks plus one bonus mark if you can write the code using only two lines)

4. Write the output for the following code in the box on the right. (3 marks)

```
1    total=0
2    for x in range (1,11):
3        total=total+x
4        print (x,total)
```

5. Write a code that will generate a random number between 1 and 10 inclusively and have a user enter a guess. The computer will then notify the user if the guess is correct or not as shown in the examples below. (4 marks)

```
>
I have a number between 1 and 10.  Please take a guess.
 5
I am sorry, that is incorrect.  The number is 4 .
>
```

```
>
I have a number between 1 and 10.  Please take a guess.
 6
Correct!
>
```

6. Convert the flowchart below to Python code. (3 marks)

```
          START
            |
            v
        INPUT A
            |
            v
         B=A/2
            |
            v
      C=INTEGER OF B
            |
            v
   FALSE  <IF C=B>  TRUE
  NUMBER              NUMBER
  IS ODD              IS EVEN
```
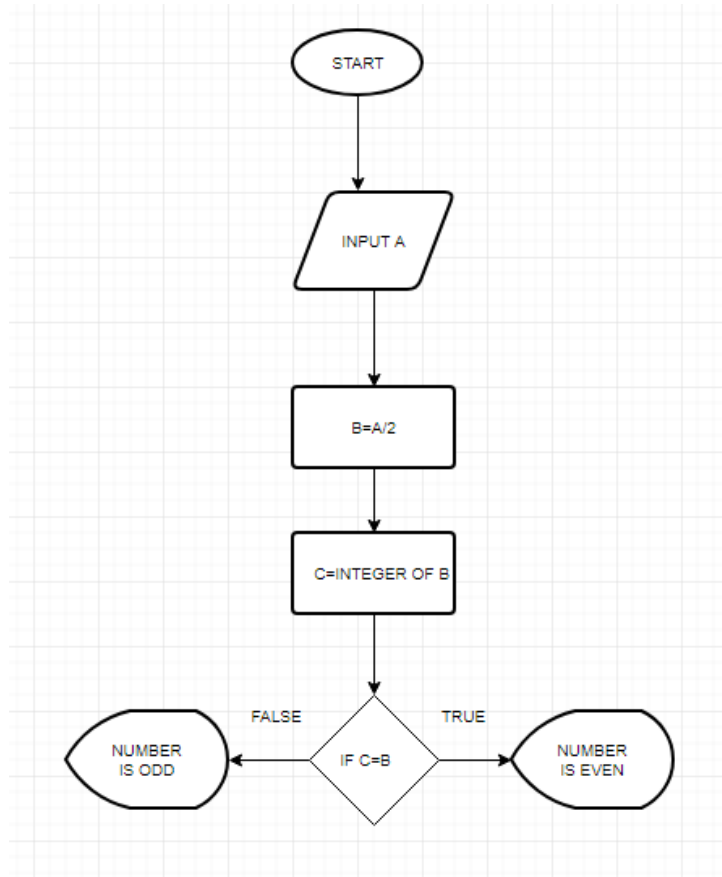
7. Bonus: Write a code that will calculate the sum of all the odd numbers from 1 to 100. (3 marks)