

LOCATION: LONDON LEVEL 4 LEFEL 4

EXAMINATION PERIOD CYFNOD ARHOLIADAU JUNE 2021

MODULE CODE: ACCB4017
SOFTWARE DEVELOPMENT

TIME: 2 HOURS

ANSWER ALL QUESTION/S IN PART ONE
ANSWER ANY TWO QUESTIONS IN PART TWO

Equipment or materials required – Computers with Python installed

PART ONE ANSWER ALL QUESTIONS

1. a) What variable type would Python infer for the following values”

24.32 *FLOAT*

-2345 *INTEGER*

Baggage *STRING*

-34.62 *FLOAT*

-56 *INTEGER*

[1 mark each - 5 marks total]

1 b) What errors are present in the following program to calculate the odd or even number?

```
print("Enter a number")
n=int(input()) if (n %2 ==0)
    print("The given number ", n, "is Even number") else
    print("The given number ", n, "is Odd")
```

correct way

```
print("Enter a number")
n=int(input())
if n %2 ==0:
    print("The given number ", n, "is Even number")
else :
    print("The given number ", n, "is Odd")
```

[5 marks]

1 c) How many iterations do the following loops have?

```
i) for i in range(50):
    print(i)           ..... 0-49 included = 50 iterations
```

```
ii) for i in range(0,10,2):
      print(i)
      ..... 0,2,4,6,8 =5 iterations
```

[4 marks]

1. d) What is the value of the integer variable *total* after the following code is executed?

```
m=1
total=0
for x in range(9):
    sum=total+x
    if(x == 5):
        sum=0
```

THE TOTAL DOES NOT CHANGE SO IT IS ==0

```
m=1
total=0
for x in range(9):
    sum=total+x
    if x==5:
        sum=0
print(total)
```

[4 marks]

1 e) Given the following program:

```
Height=[30,42,55,30,41]
```

i) Write the code you would use to print the value stored in the third element of the array on the screen

..print("Height[2]")..... [1 mark]

ii) Write the code you would use to add the first and last elements of the array

a= Height[0]+ Height[-1]..... [1 mark]

[20 marks total for Question 1]

Part TWO (Answer any two)

1. Calculating the area of a triangle

The area of a triangle is calculated using the formula

$$\text{Area} = \frac{1}{2} * b * h, \text{ where } b \text{ is breadth and } h \text{ is height of a triangle.}$$

Task:

Write a program to calculate the area of triangle using the above formula.

Allow the user to enter the measurement for *b* and *h*. Try to validate the user inputs..

```
b=float(input("Please input the breadth of the triangle  "))
while b<=0:
    print("please reinput the breadth of triangle it is impossible to have
it <=0")
    b = float(input("Please input the breadth of the triangle  "))
h=float(input("PLease input the height of the triangle  "))
while h<=0:
    print("please reinput the height of triangle it is impossible to have
it <=0")
    h = float(input("PLease input the height of the triangle  "))
print("Area of triangle is equal to:",0.5*h*b,"units")
```

[20 marks]

2. Using List

Task:

Define a list called height and enter the following values.

height = [134,145,134,122,121,141,170,180]. Use the list functions available to do the following:

1. Display the created list

```
print(height)
```

2. Insert 190 to the list at 2nd position.

```
height.insert(1,190)
```

3. Display how many elements in the list

```
print(len(height))
```

4. Sort the list in ascending order and display the modified list

```
height.sort()
print(height)
```

5. Display the list in reverse order.

```
height.sort(reverse=True)
print(height)
```

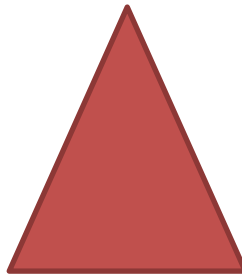
[20 marks]

3. Using Turtle

Using Python with turtle, draw the following shape :

a. A triangle (filled with red colour)

[10 marks]

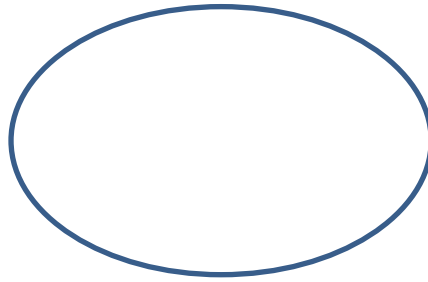


```
import turtle

t=turtle.Turtle()
t.fillcolor("red")
t.begin_fill()

for i in range (3):
    t.fd(150)
    t.lt(120)
t.end_fill()
```

b. A Circle outlined in blue.



[10 marks]

```
import turtle  
  
t=turtle.Turtle()  
t.color("blue")  
t.circle(100)
```

Diwedd/End