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LOCATION: LONDON

LEVEL 4

LEFEL 4

EXAMINATION PERIOD
MAY 2020

CYFNOD ARHOLIADAU
MAI 2020

MODULE CODE: ACCB4017
SOFTWARE DEVELOPMENT

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PART ONE ANSWER ALL QUESTIONS

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

14.32 Float.....
1234 INT.....
Bag STRING.....
-34.62 Float.....
-56 Int.....

[1 mark each - 5 marks total]

1 b) What errors are present in the following program to calculate the area of a triangle?

```
print("Enter the base)
base = int(input()
print("Enter height: ");
height = input()
area=0.5*base*height
print(" The area of the triangle is : ",area)
```

- 1.Missing closing (“)
- 2.Missing closing bracket (“)”)
- 3.Invalid character (“ ; ”)

[5 marks]

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

- i) for i in range(24):
 print(i) 0-24 (25).....
- ii) for i in range(1,10):
 print(i) ...1-10 (10).....

[4 marks]

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

```
total=1
for x in range(8):
    total=total+x
    if(x == 4):
        total=0
```

...18..... [4 marks]

1 e) Given the following program:

Temp=[23,24,25,29,40]

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

.....third = Temp[2]..... [1 mark]

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

.....Temp.append(1) – Add 1 to end of array
.....Temp.insert(0,2) – Add 2 to beginning of array.....
..... [1 mark]

[20 marks total for Question 1]

Part TWO (Answer any two)

1. Calculating the area of a circle

The area of a circle is calculated using the formula

$$Area = \pi r^2$$

Task:

Write a program to calculate the area using the above formula. Allow

the user to enter the measurement for r . You may set π as 3.142

```
# Area of circle - 1
print("Calculate area of circle (Area = Pi*radius^2)")
radius = float(input("Enter radius:"))
area = 3.142 * (radius*radius)
print("Area is: ", area)
```

[20 marks]

2. Using List

Task:

Define a list called height and enter the following values.

height = [122,145,163,122,121,141,170,180].

Use the list functions available to do the following:

1. Display the created list
2. Append 190 to the list
3. Display total number of elements in the list
4. Sort the list in ascending order and display the modified list
5. Display the list in reverse order.

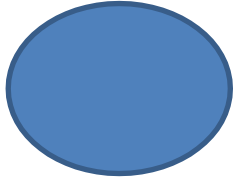
```
# List
height = [122, 145, 163, 122, 121, 141, 170, 180]
print("Working with list (height = ", height, ")")
print("1. Display the created list: ", height)
print("2. Append 190 to the list")
height.append(190)
print("List after append:", height)
print("Total number of elements is: ", len(height))
print("Sorting...")
height.sort()
print("Sorted: ", height)
height.sort(reverse=True)
print("Reversed: ", height)
```

[20 marks]

3. Using Turtle

Using Python with turtle, draw the following shape :

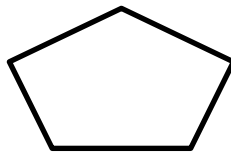
- a. A circle (filled with blue colour)



(5 marks)

```
# Circle using turtle
t = turtle.Turtle()
r = 25
col = "#00ffff"
t.fillcolor(col)
t.begin_fill()
t.circle(r)
t.end_fill()
input("Press any key to continue..")
```

- b. A Regular Pentagon



(15 marks)

```
#Turtle - Pentagon
t = turtle.Turtle()
for i in range(5):
    t.forward(100)
    t.left(72)
input("Press any key to continue..")
```

[20 marks]

Diwedd/End