

First Semester MCA (2020 Scheme)

Practical Examination June-July 2021

20MCA131 Programming Lab

Reg No: 1CE20MCA-2038

Date: 02-07-2021

Time: 4.0

Time: 1.00 - 4.00pm

Set A

- 1] List ordinal value of each element of a word.
- 2] Create a package graphics with modules rectangle, circle and sub packages 3D-graphics with modules cuboid and sphere. Include methods to find area and perimeter of respective figures in each module. Write programs that finds area and perimeter of figures by different importing statements.

Answers

1] Algorithm

Step 1: Start

Step 2: List some words

Step 3: Print the original list.

Step 4: Ordinal elements for each in list 1 for elements in sub.

Step 5: Print the ASCII list.

Step 6: Stop

Program code

```
lst1 = ['python', 'java', 'linux']  
print("The original list is\n", str(lst1))  
res =  
res = [ord(ele) for sub in lst1 for ele in sub]  
print("The ASCII list is :\n", str(res))
```

Predicted output

The original list: ['python', 'java', 'linux']
The ASCII list is [112, 121, 116, 104, 111, 110, 106, 97, 118, 97, 108, 105, 110,
117, 120]

Output

The original list: ['python', 'java', 'linux']
The ASCII list is [112, 121, 116, 104, 111, 110, 106, 97, 118, 97, 108, 105, 110, 117, 120]

Algorithm

Step 1: Start

Step 2: Initialize all variables.

Step 3: Import all program function from module graphics main package and its sub packages.

Step 4: Read the value from keyboard to display area and perimeter of various shapes.

Step 5: Call functions to main program for calculation of area, perimeter.

Step 6: Stop

Program code

graphics circle.py

```
def circlearea(r):
```

```
    area = 3.14 * r * r
```

```
    return area
```

```
def circleperimeter(r):
```

```
    perimeter = 2 * 3.14 * r
```

```
    return perimeter
```

graphics rectangle.py.

```
def rectarea(l,b):
```

```
    area = l * b
```

```
    return area
```

```
def rectperimeter(l,b):
```

```
    perimeter = 2 * (l + b)
```

```
    return perimeter
```

graphics → dgraphics → cuboid.py.

```
def cuboidarea(l,b,h):
```

```
    area = 2 * (l * b + b * h + h * l)
```

```
    return area
```

```
def cuboidperimeter(l,b,h):
```

```
    perimeter = 4 * (l + b + h)
```

```
    return perimeter
```


crnaphis → dgraphics → sphere.py

```
def spherearea(r):
```

```
    area = 4 * 3.14 * r * r
```

```
    return area
```

```
def sphereperimeter(r):
```

```
    perimeter = 2 * 3.14 * r
```

```
    return perimeter
```

crnaphis main.py

```
From graphics.rectangle import *
```

```
From graphics.circle import *
```

```
From graphics.dgraphics.cuboid import *
```

```
From graphics.dgraphics.sphere import *
```

```
num1 = int(input("Enter the length of rectangle"))
```

```
num2 = int(input("Enter the breadth of rectangle"))
```

```
print("area =", Rectarea(num1, num2))
```

```
print("perimeter =", Rectperimeter(num1, num2))
```

```
radius = int(input("Enter the radius of circle"))
```

```
print("circle area", Circlearea(radius))
```

```
print("circle perimeter", Circleperimeter(r))
```

```
radius = int(input("Enter the radius of sphere"))
```

```
print("sphere area", area spheresphere spherearea(r))
```

```
print("sphere perimeterarea, sphereperimeter(r))
```

edge = int(input("enter the edge of cuboid"))

l = int(input("enter the length of cuboid"))

b = int(input("enter the breadth of cuboid"))

h = int(input("enter the height of cuboid"))

print("area of cuboid", cuboid_area(l, b, h))

print("perimeter of cuboid", cuboid_perimeter(l, b, h))

Predicted output

Enter the length: 5

Enter the width: 2

Rectangle Area = 10.0

Rectangle Perimeter = 14.0

Enter the Radius = 6

Circle Area = 113.03

Circle Perimeter = 37.68

enter the edge of cuboid = 3

Enter the length = 10

enter the width = 4

Enter the height = 8

cuboid Area = ~~204~~ 68.64

cuboid perimeter = 88.0

Enter the Radius = 12

Sphere area = 1809.63

Sphere perimeter = 75.36

Output

enter the length = 2

enter the width = 3

Rectangle Area = 6

Rectangle Perimeter = 10

enter the radius = 3

Circle Area = 28.25999

Circle Perimeter = 18.84

enter the length = 2

enter the width = 3

enter the height = 4

Cuboid Area = 96

Cuboid perimeter = 36

enter the radius = 4

Sphere area = 200.96

Sphere perimeter = 251.9466