

## Python for Class XII - Part 15

### Topics:

Using Python libraries: create and import Python libraries.  
(Continued)

## Module Aliasing and Member Aliasing

You can create an alias (second name) when you import a module by using the as keyword.

Examples:

```
import test as t
import math as Mathematics, sys as system
```

Like module aliasing member aliasing is also supported in Python.

Example:

```
from cylinder import cal_csa as csa, cal_tsa as tsa
```

## Importing multiple Modules in Python

To import multiple modules with a single import statement, just separate the module names by commas. For example,

```
import math, sys, os
```

If you want to change the name under which the modules are imported, just add as after each module name followed by module alias. For example,

```
import math as Mathematics, sys as system
```

### More Examples:

(1)

```
# module: cylinder.py
from math import pi

def cal_csa(radius, height):
    return 2 * pi * radius * height

def cal_tsa(radius, height):
    return 2 * pi * radius * height + 2 * pi * radius ** 2

def cal_vol(radius, height):
    return pi * ( radius ** 2 ) * height
```

```
# module: cone.py
from math import pi, sqrt
```

```

def cal_csa(radius, height):
    l = sqrt(radius ** 2 + height ** 2)
    return pi * radius * l

def cal_tsa(radius, height):
    l = sqrt(radius ** 2 + height ** 2)
    return pi * radius * l + pi * radius ** 2

def cal_vol(radius, height):
    return (1 / 3) * pi * ( radius ** 2 ) * height

```

```

# main_prog7.py
import cylinder, cone

print("Enter the dimensions of the cylinder:")
r = float(input("Radius: "))
h = float(input("Height: "))

print("Curved surface area(in sq. units): %.2f" %cylinder.cal_csa(r, h))
print("Total surface area(in sq. units): %.2f" %cylinder.cal_tsa(r, h))
print("Volume(in cu. units): %.2f" %cylinder.cal_vol(r, h))

print()

print("Enter the dimensions of the cone:")
r = float(input("Radius: "))
h = float(input("Height: "))

print("Curved surface area(in sq. units): %.2f" %cone.cal_csa(r, h))
print("Total surface area(in sq. units): %.2f" %cone.cal_tsa(r, h))
print("Volume(in cu. units): %.2f" %cone.cal_vol(r, h))

```

### Run:

python main\_prog7.py

### Output:

Enter the dimensions of the cylinder:

Radius: 7

Height: 5

Curved surface area(in sq. units): 219.91

Total surface area(in sq. units): 527.79

Volume(in cu. units): 769.69

Enter the dimensions of the cone:

Radius: 8

Height: 7

Curved surface area(in sq. units): 267.16

Total surface area(in sq. units): 468.23

Volume(in cu. units): 469.14

(2)

```
# module: cylinder.py
from math import pi

def cal_csa(radius, height):
    return 2 * pi * radius * height

def cal_tsa(radius, height):
    return 2 * pi * radius * height + 2 * pi * radius ** 2

def cal_vol(radius, height):
    return pi * ( radius ** 2 ) * height
```

```
# module: cone.py
from math import pi, sqrt

def cal_csa(radius, height):
    l = sqrt(radius ** 2 + height ** 2)
    return pi * radius * l

def cal_tsa(radius, height):
    l = sqrt(radius ** 2 + height ** 2)
    return pi * radius * l + pi * radius ** 2

def cal_vol(radius, height):
    return (1 / 3) * pi * ( radius ** 2 ) * height
```

```
# main_prog8.py
import cylinder as cy, cone as cn

print("Enter the dimensions of the cylinder:")
r = float(input("Radius: "))
h = float(input("Height: "))
```

```
print("Curved surface area(in sq. units): %.2f" %cy.cal_csa(r, h))
print("Total surface area(in sq. units): %.2f" %cy.cal_tsa(r, h))
print("Volume(in cu. units): %.2f" %cy.cal_vol(r, h))

print()

print("Enter the dimensions of the cone:")
r = float(input("Radius: "))
h = float(input("Height: "))

print("Curved surface area(in sq. units): %.2f" %cn.cal_csa(r, h))
print("Total surface area(in sq. units): %.2f" %cn.cal_tsa(r, h))
print("Volume(in cu. units): %.2f" %cn.cal_vol(r, h))
```

**Run:**

python main\_prog8.py

**Output:**

Enter the dimensions of the cylinder:

Radius: 7

Height: 5

Curved surface area(in sq. units): 219.91

Total surface area(in sq. units): 527.79

Volume(in cu. units): 769.69

Enter the dimensions of the cone:

Radius: 4

Height: 3

Curved surface area(in sq. units): 62.83

Total surface area(in sq. units): 113.10

Volume(in cu. units): 50.27