ASSIGNMENT-1

Q1. Use print command on python to find i.)sin30 ii.) pi iii.)e iv.)cod30

```
>>> from math import *
>>> sin(30)
-0.9880316240928618
>>> pi
3.141592653589793
>>> e
2.718281828459045
>>> cos(30)
0.15425144988758405
```

Q2. Use python code to evaluate each of the following expression i.)20 modulus 2+7-(3+7)x20÷2 ii.)30x10 floor division 3+10 modulus 3 iii.)25-24+4 floor division 4

```
>>> A=20%2+7-(3+7)*20/2
>>> print(A)
-93.0
>>> B=30*10//3+10%3
>>> print(B)
101
>>> C=25-24+4//4
>>> print(C)
2
```

Q3. Write the python code to print ‘Python is bad’ and ‘Python is wonderful’ ,where wonderful is global variable and bad is local variable.

```
>>> wonderful = "wonderful"
>>> def print_messages():
...     bad = "bad"
...     print(f"Python is {bad}")
...     print(f"Python is {wonderful}")
>>> print_messages()
Python is bad
Python is wonderful
```

Q4. Use print code on Python (a=4,b=6,c=8,d=12). (i) print(a+c) (ii) print(a*b) (iii) print(c**d) (iv) print(a/b) (e) Expression: 3 + (9 - 2) / 7 * 2 ** 2

```
>>> a=4; b=6; c=8; d=10

>>> print(a+c)

12

>>> print(a*b)

24

>>> print(c**d)

1073741824

>>> print(a/b)

0.6666666666666666

>>> 3+(9-2)/7*2**2

7.0
```

Q5. . Using Python code, evaluate the following expression of two complex number z1 = 3 + 2j and z2 = −4 + 1j i.) z1 + z2 ii.) z1 − z2 iii.) z1 ∗ z2

```
>>> z1=3+2j ; z2=-4+1j

>>> z1+z2

(-1+3j)

>>> z1-z2

(7+1j)

>>> z1*z2

(-14-5j)
```

Q6. Write a program to convert temperature from Farhrenheit to Celsius.

```
>>> def fahrenheit_to_celsius(fahrenheit):

...     celsius = (fahrenheit - 32) * 5/9

...     return celsius

...     fahrenheit_temperature = 32

...     celsius_temperature = fahrenheit_to_celsius(fahrenheit_temperature)

...     print(f"{fahrenheit_temperature} degrees Fahrenheit is {celsius_temperature:.2f} degrees Celsius.")

...

>>> fahrenheit_to_celsius(64)

17.77777777777778
```

Q7. Write a program that calculates the volume and surface area of sphere from its radius given as input

```
>>> def volume(r):
```

```
...     volume = 4/3*pi*r**3
...     print(f"volume of sphere is:",{volume})
...
>>> volume(2)
volume of sphere is: {33.510321638291124}
>>> def surface_area(r):
...     surface_area = 4*pi*r**2
...     print(f"surface area of sphere is:",{surface_area})
...
>>> surface_area(3)
surface area of sphere is: {113.09733552923255}
```

Q8. Wirte a program that calculates the cost per square inch of a circular pizza, given its diameter and price. The formula of area is πr2.

```
>>> from math import *
>>> def cost_per_square_inch(diameter,price):
...     radius = diameter/2
...     area =pi*radius**2
...     cost_per_inch=price/area
...     return cost_per_inch
...     pizza_diameter=float(input("enter the diameter of the pizza in inches:"))
...     pizza_price=float(input("enter the price of the pizza:$"))
...     result=cost_per_square_inch(pizza_diameter,pizza_price)
...     print(f"the cost per square inch of the pizza is:${result:.2f}")
...
>>> cost_per_square_inch(5,100)
5.092958178940651
```

Q9. Write a python program to find the area and circumference of a circle(r=5)

```
>>> from math import *
>>> r=5; pi=3.14 ; area=pi*r**2; circumference=2*pi*r
>>> print(area)
78.5
>>> print(circumference)
31.400000000000002
```

Q10. Write Python program to find diameter, area, circumference of the circle with radius is 5.

```
>>> from math import *
>>> r=5; pi=3.14;diameter=2*r; area=pi*r**2; circumference=2*pi*r
>>> print(diameter)
10
>>> print(area)
78.5
>>> print(circumference)
31.400000000000002
```

Q11. Use python code to find hypotenuse of triangle whose sides are 12 and 5.

```
>>> from math import *
>>> side1=12; side2=5; hypotenuse=side1**2+side2**2
>>> print(hypotenuse)
169
```

Q12. Find the values of the following exression if x and y are true and z is false. i.) (x or y) and z ii.) (x and y) or not z. iii.) (x and not y)or (x and z).

```
>>> x='true'
>>> y='true'
>>> z='false'
>>> p=x or y and z
>>> print(p)
true
>>> x='true'
>>> y='true'
>>> z='false'
>>> p=x or y
>>> print(p)
true
>>> q=p and z
>>> print(q)
false
>>> a=x and y
>>> print(a)
true
>>> b=a or not z
```

```
>>> print(b)
true
>>> c=x and not y
>>> print(c)
False
>>> d=c or x and z
>>> print(d)
false
```