Assignment 1 : Basics

Question 1: Write a Python program to print your name, address, city, and pin code.

Code:

Python
```
print("Name : Rohan Sharma")
print("Plot No. : 123, Silicon Hills")
print("PO : Patia")
print("City: Bhubaneswar")
print("Pin: 751024")
```

Output:

```
Name : Rohan Sharma
Plot No. : 123, Silicon Hills
PO : Patia
City: Bhubaneswar
Pin: 751024
```

Question 2: Write a Python program to print a personalized message.

Code:

Python
```
a = "Hello Priya, would you like to learn some Python today?"
print(a)
```

Output:

```
Hello Priya, would you like to learn some Python today?
```

Question 3: Write a Python program to print the college address in a specific format.

Code:

Python
```
print("* " * 6)
print("* COLLEGE : SILICON      *")
print("* ADDRESS :SILICON HILLS *")
print("* NEAR DLF BUILDING      *")
print("* PATIA                  *")
print("* BHUBANESWAR            *")
```

```
print("* 751024                *")
print("* " * 6)
```

Output:

```
* * * * * * * COLLEGE : SILICON      *
* ADDRESS :SILICON HILLS *
* NEAR DLF BUILDING      *
* PATIA                  *
* BHUBANESWAR            *
* 751024                 *
* * * * * * ```
```

***

Question 4: Write a Python program to add two numbers entered by the user.

Code:

```python
A = int(input("Enter a number: "))
B = int(input("Enter another number: "))
C = A + B
print("The sum is:", C)
```

Sample Output:

```
Enter a number: 10
Enter another number: 20
The sum is: 30
```

Question 5: Write a Python program to perform basic arithmetic operations on two numbers.

Code:

```
Python
A = int(input("Enter a number: "))
B = int(input("Enter another number: "))
add = A + B
sub = A - B
mul = A * B
div = A / B
print("The sum is:", add)
print("The difference is:", sub)
print("The product is:", mul)
print("The quotient is:", div)
```

Sample Output:

```
Enter a number: 10
Enter another number: 5
The sum is: 15
The difference is: 5
The product is: 50
The quotient is: 2.0
```

Question 6: Write a Python program to calculate the area and perimeter of a rectangle.

Code:

```
Python
length = float(input("Enter length of rectangle: "))
breadth = float(input("Enter breadth of rectangle: "))
area = length * breadth
perimeter = 2 * (length + breadth)
print(f"Area of rectangle = {area}")
print(f"Perimeter of rectangle = {perimeter}")
```

Sample Output:

```
Enter length of rectangle: 10
Enter breadth of rectangle: 5
Area of rectangle = 50.0
Perimeter of rectangle = 30.0
```

Question 7: Write a Python program to calculate the area of a triangle.

Code:

```
Python
base = float(input("Enter base of triangle: "))
height = float(input("Enter height of triangle: "))
area = 0.5 * base * height
print(f"Area of triangle = {area}")
```

Sample Output:

```
Enter base of triangle: 10
Enter height of triangle: 5
Area of triangle = 25.0
```

Question 8: Write a Python program to calculate the volume of a cylinder.

Code:

```
Python
radius = float(input("Enter radius of cylinder: "))
height = float(input("Enter height of cylinder: "))
```

```
volume = 3.14 * radius**2 * height
print(f"Volume of cylinder = {volume:.2f}")
```

Sample Output:

```
Enter radius of cylinder: 5
Enter height of cylinder: 10
Volume of cylinder = 785.00
```

Question 9: Write a Python program to calculate the volume of a sphere.

Code:

```
Python
radius = float(input("Enter radius of sphere: "))
volume = (4/3) * 3.14 * radius**3
print(f"Volume of sphere = {volume:.2f}")
```

Sample Output:

```
Enter radius of sphere: 3
Volume of sphere = 113.04
```

Question 10: Write a Python program to calculate the area and perimeter of a circle.

Code:

```
Python
radius = float(input("Enter radius of circle: "))
area = 3.14 * radius**2
perimeter = 2 * 3.14 * radius
print(f"Area of circle = {area:.2f}")
print(f"Perimeter of circle = {perimeter:.2f}")
```

Sample Output:

```
Enter radius of circle: 5
Area of circle = 78.50
Perimeter of circle = 31.40
```

Question 11: Write a Python program to find the sum of the first n natural numbers.

Code:

```
Python
n = int(input("Enter n: "))
sum_n = n * (n + 1) // 2
print(f"Sum of first {n} natural numbers = {sum_n}")
```

Sample Output:

Enter n: 10
Sum of first 10 natural numbers = 55

Question 12: Write a Python program to convert temperature from Fahrenheit to Celsius.

Code:

Python
```
fahrenheit = float(input("Enter temperature in Fahrenheit: "))
celsius = (fahrenheit - 32) * 5/9
print(f"Temperature in Celsius = {celsius:.2f}")
```

Sample Output:

Enter temperature in Fahrenheit: 98.6
Temperature in Celsius = 37.00

Question 13: Write a Python program to calculate the total marks and percentage of a student.

Code:

Python
```
subject1 = float(input("Enter marks in subject 1: "))
subject2 = float(input("Enter marks in subject 2: "))
subject3 = float(input("Enter marks in subject 3: "))
subject4 = float(input("Enter marks in subject 4: "))
total_marks = subject1 + subject2 + subject3 + subject4
percentage = (total_marks / 400) * 100
print(f"Percentage = {percentage:.2f}%")
```

Sample Output:

Enter marks in subject 1: 90
Enter marks in subject 2: 85
Enter marks in subject 3: 95
Enter marks in subject 4: 80
Percentage = 87.50%

Question 14: Write a Python program to convert distance from centimeters to inches.

Code:

Python
```
centimeters = float(input("Enter distance in centimeters: "))
```

```
inches = centimeters / 2.54
print(f"{centimeters} centimeters = {inches:.2f} inches")
```

Sample Output:

```
Enter distance in centimeters: 10
10.0 centimeters = 3.94 inches
```

Question 15: Write a Python program to calculate simple interest.

Code:

```
Python
principal = float(input("Enter principal amount: "))
rate = float(input("Enter rate of interest: "))
time = float(input("Enter time period (in years): "))
simple_interest = (principal * rate * time) / 100
print(f"Simple Interest = {simple_interest:.2f}")
```

Sample Output:

```
Enter principal amount: 1000
Enter rate of interest: 5
Enter time period (in years): 2
Simple Interest = 100.00
```

Question 16: Write a Python program to calculate displacement 's'.

Code:

```
Python
u = float(input("Enter initial velocity (u): "))
t = float(input("Enter time (t): "))
a = float(input("Enter acceleration (a): "))
s = u * t + 0.5 * a * t**2
print(f"Value of s = {s:.2f}")
```

Sample Output:

```
Enter initial velocity (u): 10
Enter time (t): 5
Enter acceleration (a): 2
Value of s = 75.00
```

Question 17: Write a Python program to swap two numbers using a third variable.

Code:

```
Python
```

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
print(f"Before swapping: a = {a}, b = {b}")
temp = a
a = b
b = temp
print(f"After swapping: a = {a}, b = {b}")
```

Sample Output:

```
Enter first number: 10
Enter second number: 20
Before swapping: a = 10, b = 20
After swapping: a = 20, b = 10
```

Question 18: Write a Python program to swap two numbers without using a third variable.

Code:

Python

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
print(f"Before swapping: a = {a}, b = {b}")
a = a + b
b = a - b
a = a - b
print(f"After swapping: a = {a}, b = {b}")
```

Sample Output:

```
Enter first number: 10
Enter second number: 20
Before swapping: a = 10, b = 20
After swapping: a = 20, b = 10
```

Question 19: Write a Python program to calculate the gross salary of an employee.

Code:

Python

```
basic_salary = float(input("Enter basic salary: "))
da = 0.60 * basic_salary
hra = 0.15 * basic_salary
gross_salary = basic_salary + da + hra
print(f"Basic Salary = {basic_salary}")
print(f"DA (60%) = {da}")
print(f"HRA (15%) = {hra}")
print(f"Gross Salary = {gross_salary}")
```

Sample Output:

Enter basic salary: 50000
Basic Salary = 50000.0
DA (60%) = 30000.0
HRA (15%) = 7500.0
Gross Salary = 87500.0

Question 20: Write a Python program to check if a character is present in a string.

Code:

```
Python
string = "apple"
result = 'a' in string
print(f"Is 'a' present in '{string}'? {result}")
```

Output:

Is 'a' present in 'apple'? True