Q1.Explain the key features of Python that makes it a popular choice for programming.

ans: The key features of python to be so popular are as follows:- (i)Ease of learning and use . (ii)Large standard libraries. (iii)Large active community. (iv)Simple syntax (v)It can run on different operating system without significant modification.

Q2.Describe the role of predefined keywords in Python and provide examples of how they are used in a programe.

ans: The Predefined keywords are also know as built in functions in Python programming. (.)They have some specific meaning that perform some specific task and operation. E.g:"Break","Continue","def","print" and many more.

```
print('HEY I AM SHUBHAM KUMAR AND THIS IS MY FIRST ASSIGNMENT')
```

```
HEY I AM SHUBHAM KUMAR AND THIS IS MY FIRST ASSIGNMENT
```

Q3.Compare and contrast mutable and immutable objects in Python.

ans: In Python Mutable objects are those that can be modified after creationare called as mutable objects. e.g:List,dict,etc. while Immutable objects are those that cann't be changed once they are created are called as immutable objects. e.g:strings ,Tuples,etc.

```
#mutable example:
L=[1,2,3]
print(L)
```

```
[1, 2, 3]
```

```
#while assigning first  items in the list as '7' then :
L[0]=7
print(L)
```

```
[7, 2, 3]
```

```
#HERE THE NEW LIST IS CHANGED AND THE FIRST ITEM HAS BEEN CHANGED IN
THE LIST.
#HENCE "MUTABLE".

#Immutable example:
t=(1,2,3)
print(t)
```

```
(1, 2, 3)
```

```
#assigning new item in tuple:
t[0]=7
print(t)
```

```
---------------------------------------------------------------------
-----
```

```
TypeError                                 Traceback (most recent call
last)
Cell In[6], line 2
      1 #assigning new item in tuple:
----> 2 t[0]=7
      3 print(t)

TypeError: 'tuple' object does not support item assignment

#here error occured bcoz "tuples" are immutable.
```

Q4.Discuss the different types of operators in Python and provide examples of they are used .

ans:The different types of operators are : (i)Arithmetic operators : Addition(+) substraction(-) multiplication(*) division(/) modulous(%) exponential(**)

(ii)Comparison operator: equal to(==) not equal(!=) greater than(>) less than(<) greater than or equal to(>=) less han or equal to(<=)

(iii)Logical operators: 'and' 'or' 'not'

(iv)Bitwise operator: bitwise and(&) bitwise or(OR) bitwise not(NOT) bitwise left(<<) bitwise right(>>)

(v)Assignment operator: (=) (+) (-)

(vi)Membership operator: (in) (not in)

(vii)Identity operator: (is) (is not)

Q5.Explain the concept of type casting in Python with example.

ans: Type casting is a process of converting an object to a differen data type .This is done to ensure compatibility or to perform specific function. There are two types of casting: (i)implicit (ii)explicit

```
#example of type casting:
l="10"
print(type(l))

<class 'str'>

#here the class of "l" is string data type.

l=int(l)
print(type(l))

<class 'int'>

#here after casting it ,the string data type is converted into integer
data type.
```

Q6.How do conditional statements work in Python?Illustrate with example.

ans: Conditional statements in Python are used to execute a block of code repeatedly based on specific condition. There are three types of conditional statements: (i)'if' (ii)'elif' (iii)'else'

```
#examples:
x=5
if x==5:
    print("x is equals t 5")
```

```
x is equals t 5
```

```
#examples:
x=6
if x==5:
    print('equal to 5')
else:
     print('x is not equals to 5')
```

```
x is not equals to 5
```

Q7.Describe different types of loops in Python and their uses with examples.

ans: The different types of loops are : "For loop","while loop","nested loop" (i)For loop: It is used when we need to execute a block of code repeatedly for each time in a sequence.

```
#example:
l=['a','b','c']
for i in l:
    print(i)
```

```
a
b
c
```

(ii)While loop: It is used until we meet a certain condition.

```
#example:
i=0
while i<5:
    print(i)
    i+=1
```

```
0
1
2
3
4
```