EX 1 :-

```
num = int(input("Enter a number: "))
if num % 2 == 0:
    print("Even")
else:
    print("Odd")
```

EX 2 :-

```
a = float(input("First: "))
b = float(input("Second: "))
op = input("Op (+ - * /): ")
if op == '+': print(a + b)
elif op == '-': print(a - b)
elif op == '*': print(a * b)
elif op == '/': print(a / b if b != 0 else "Can't divide by 0")
else: print("Wrong op")
```

Ex 3:-

```
year = int(input("Enter year: "))
print("Leap Year" if year % 4 == 0 and (year % 100 != 0 or year % 400 == 0) else "Not a Leap Year")
```

Ex 4:-

```
n = int(input("Enter number: "))
```

```
f = 1
for i in range(1, n+1):
    f *= i
print("Factorial:", f)
```

Ex 5:-

```
n = int(input("Enter number of terms: "))
a, b = 0, 1
for _ in range(n):
    print(a, end=' ')
    a, b = b, a + b
```

Ex 6:-

```
num = int(input("Enter a number: "))
s = sum(int(d)**3 for d in str(num))
print("Armstrong" if s == num else "Not Armstrong")
```

Ex 7:-

```
lst = [1, 2, 3, 4, 5]
n = int(input("Enter how many times to rotate: "))
lst = lst[n:] + lst[:n]
print("Rotated List:", lst)
```

Ex 8:-

```
t = (10, 20, 30, 40)
item = int(input("Enter item: "))
print("Found" if item in t else "Not found")
```

Ex 9:-

```
n = int(input("Enter a number: "))
d = {x: x*x for x in range(1, n+1)}
print(d)
```

Ex 10:-

```
set1 = {1, 2, 3, 4}
set2 = {3, 4, 5, 6}

print("Union:", set1 | set2)
print("Intersection:", set1 & set2)
print("Subtraction:", set1 - set2)
print("Symmetric Difference:", set1 ^ set2)
```

Ex 11:-

```
nums = [5, 8, 3, 9, 1]
print("Maximum:", max(nums))
```

Ex 12:-

```
s = input("Enter a string: ")
```

```
print("Uppercase:", s.upper())
print("Lowercase:", s.lower())
print("Length:", len(s))
print("Reversed:", s[::-1])
```

Ex 13:-

```
from array import array

a = array('i', [1, 2, 3, 4, 5])
print("Sum:", sum(a))
```

Ex 14:-

```
a = [[1, 2], [3, 4]]
b = [[5, 6], [7, 8]]
res = [[0, 0], [0, 0]]

for i in range(2):
    for j in range(2):
        for k in range(2):
            res[i][j] += a[i][k] * b[k][j]

print("Result:", res)
```

Ex 15:-

```
def swap(x, y):
    x, y = y, x
    print("After swap: x =", x, "y =", y)

a = int(input("Enter x: "))
b = int(input("Enter y: "))
swap(a, b)
```

Ex 16:-

```
from functools import reduce

nums = list(range(1, 6))                    # range
squares = list(map(lambda x: x*x, nums))     # map + lambda
evens = list(filter(lambda x: x % 2 == 0, nums))  # filter + lambda
total = reduce(lambda x, y: x + y, nums)     # reduce + lambda

print("Nums:", nums)
print("Squares:", squares)
print("Evens:", evens)
print("Sum:", total)
```