1. What is the output of the following code?

nums = set([1,1,2,3,3,3,4,4])

print(len(nums))

**Answer)**

**4**

**2**. What will be the output?

d = {"john":40, "peter":45}

print(list(d.keys()))B

**Answer)**

**['john', 'peter']**

**3**. A website requires a user to input username and password to register. Write a program to check the validity of password given by user. Following are the criteria for checking password:

1. At least 1 letter between [a-z]
2. At least 1 number between [0-9]
3. At least 1 letter between [A-Z]
4. At least 1 character from [$#@]
5. Minimum length of transaction password: 6
6. Maximum length of transaction password: 12

**Answer)** Used Regular expression for validation checks.

**import re**

**p = "Happy@2024"**

**x = True**

**while x:**

**if (len(p) < 6 or len(p) > 12):**

**break**

**elif not re.search("[a-z]", p):**

**break**

**elif not re.search("[0-9]", p):**

**break**

**elif not re.search("[A-Z]", p):**

**break**

**elif not re.search("[$#@]", p):**

**break**

**else:**

**print("Valid Password")**

**x = False**

**break**

**if x:**

**print("Not a Valid Password")**

Output will be Valid Password based on the input given above.

**4**.Write a for loop that prints all elements of a list and their position in the list.

a = [4,7,3,2,5,9]

**Answer)**

**a = [4,7,3,2,5,9]**

**for i in a:**

**print("Element: " + str(i) + " Index: "+ str(a.index(i)))**

Output will be:

**Element: 4 Index: 0**

**Element: 7 Index: 1**

**Element: 3 Index: 2**

**Element: 2 Index: 3**

**Element: 5 Index: 4**

**Element: 9 Index: 5**

**5**.Please write a program which accepts a string from console and print the characters that have even indexes.

Example: If the following string is given as input to the program: H1e2l3l4o5w6o7r8l9d

Then, the output of the program should be: Helloworld

**Answer)**

**print("Please enter text to print::")**

**Val = "H1a2ppy123S9u3n8Day1"**

**if Val:**

**string = ""**

**for i in Val:**

**if Val.index(i)%2 == 0:**

**string += str(i)**

**print("You Entered:", Val)**

**print("Result:")**

**print(string)**

**Output:**

Please enter text to print::

You Entered: H1a2ppy123S9u3n8Day1

Result:

HappySunDay

**6**.Please write a program which accepts a string from console and print it in reverse order.

Example: If the following string is given as input to the program: **rise to vote sir**

Then, the output of the program should be: **ris etov ot esir**

**Answer)**

**rev = " Good Morning"[::-1]**

**print(rev)**

Output:  
gninroM dooG

**7.** Please write a program which count and print the numbers of each character in a string input by console.

Example: If the following string is given as input to the program: **abcdefgabc**

Then, the output of the program should be:

a,2

c,2

b,2

e,1

d,1

g,1

f,1

**Answer)**

**inp= "Malayalam"**

**out = {x : inp.count(x) for x in set(inp)}**

**print ("Occurrence of all characters in Malayalam is :\n "+ str(out))**

Output will be:

Occurrence of all characters in Malayalam is :

{'a': 4, 'm': 1, 'M': 1, 'l': 2, 'y': 1

**8.** With two given lists [1,3,6,78,35,55] and [12,24,35,24,88,120,155], write a program to make a list whose elements are intersection of the above given lists.

**Answer)**

**def intersection(list1, list2):**

**list3 = [value for value in list1 if value in list2]**

**return list3**

**list1 = [1,3,6,78,35,55]**

**list2 = [12,24,35,24,88,120,155]**

**print(intersection(list1, list2))**

Output will be:

35

**9**. With a given list [12,24,35,24,88,120,155,88,120,155], write a program to print this list after removing all duplicate values with original order reserved.

**Answer)**

**def Remove(duplicate):**

**final\_list = []**

**for num in duplicate:**

**if num not in final\_list:**

**final\_list.append(num)**

**return final\_list**

**duplicate = [12,24,35,24,88,120,155,88,120,155]**

**print(Remove(duplicate))**

Output will be:

[12, 24, 35, 88, 120, 155]

**10.** By using list comprehension, please write a program to print the list after removing the value 24 in [12,24,35,24,88,120,155].

**Answer)**

**lists = [12,24,35,24,88,120,155]**

**lists= [x for x in lists if x!=24]**

**print(lists)**

Output will be:

[12, 35, 88, 120, 155]

**11**. By using list comprehension, please write a program to print the list after removing the 0th,4th,5th numbers in [12,24,35,70,88,120,155].

**Answer)**

**lists= [12,24,35,70,88,120,155]**

**lists= [x for (i,x) in enumerate(lists) if i not in (0,4,5)]**

**print (lists)**

Output will be:

[24, 35, 70, 155]

12. By using list comprehension, please write a program to print the list after removing delete numbers which are divisible by 5 and 7 in [12,24,35,70,88,120,155].

**Answer)**

**lst = [12,24,35,70,88,120,155]**

**lst = [x for x in lst if x%5!=0 and x%7!=0]**

**print(lst)**

Output will be:

[12, 24, 88]

13. Please write a program to randomly generate a list with 5 numbers, which are divisible by 5 and 7 , between 1 and 1000 inclusive.

**Answer)**

**import random**

**lst = [i for i in range(1,1000) if (i%7==0) and (i%5==0)]**

**resp = random.sample(lst,5)**

**print(resp)**

Output will be:

[455, 875, 35, 175, 770]

Output will be changed on each execution because of using random, Rndomly it select 5 numbers based on above logic.

14. Write a program to compute 1/2+2/3+3/4+...+n/n+1 with a given n input by console (n>0).

Example: If the following n is given as input to the program: 5

Then, the output of the program should be: 3.55

**Answer)**

**n=int(10)**

**sum=0.0**

**for i in range(1,n+1):**

**sum += float(float(i)/(i+1))**

**print(sum)**

Output will be:

7.980122655122655