1. What is the output of the following code?

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

print(len(nums))

**Ans: 4**

1. What will be the output? d = {"john":40, "peter":45} print(list(d.keys()))

**Ans: ['john', 'peter']**

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

**import re**

**def password\_validity(password):**

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

**return "Password must be between 6 to 12 characters."**

**if not re.search ("[a-z]",password):**

**return "Password must contain at least one lowercase character "**

**if not re.search ("[A-Z]",password):**

**return "Password must contain at least one uppercase character"**

**if not re.search("[0-9]", password):**

**return "Password must contain at least one number."**

**if not re.search("[$#@]", password):**

**return "Password must contain at least one special character ($, #, or @)."**

**return "Password is valid."**

**password = input("Enter your password: ")**

**result = password\_validity(password)**

**print(result)**

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

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

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

**for index, value in enumerate(a):**

**print(f"Element at position {index} is {value}")**

1. 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

**input\_string = "H1e2l3l4o5w6o7r8l9d"**

**result = input\_string[::2]**

**print(result)**

1. 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**

**a = "rise to vote sir"**

**print(a[::-1])**

1. 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

**from collections import Counter**

**input\_string = input("Enter a string :")**

**char\_count = Counter(input\_string)**

**for char, count in char\_count.items():**

**print(f"{char},{count}")**

1. 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.

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

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

**intersection = list(set(list1) & set(list2))**

**print("The intersection of the two lists is:", intersection)**

1. 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.

**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))**

1. 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].

**my\_list = [12, 24, 35, 24, 88, 120, 155]**

**new\_list = [num for num in my\_list if num != 24] print(new\_list)**

1. 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].

**my\_list = [12, 24, 35, 70, 88, 120, 155]**

**new\_list = [num for i, num in enumerate(my\_list) if i not in (0, 4, 5)]**

**print(new\_list)**

1. . 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].

**my\_list = [12, 24, 35, 70, 88, 120, 155]**

**new\_list = [num for num in my\_list if num % 5 != 0 and num % 7 != 0]**

**print(new\_list)**

1. Please write a program to randomly generate a list with 5 numbers, which are divisible by 5 and 7 , between 1 and 1000 inclusive.
2. 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

15.