Question 1:

Define a class with a generator which can iterate the numbers, which are divisible by

7, between a given range 0 and n.

Ans1

class DivideBySeven:

def \_\_init\_\_(self, n):

self.n = n

def generate(self):

for i in range(self.n+1):

if i % 7 == 0:

yield i

Question 2:

Write a program to compute the frequency of the words from the input. The output

should output after sorting the key alphanumerically.

Suppose the following input is supplied to the program:

New to Python or choosing between Python 2 and Python 3? Read Python 2 or

Python 3.

Then, the output should be:

2:2

3.:1

3?:1

New:1

Python:5

Read:1

and:1

between:1

choosing:1

or:2

to:1

Ans2

sentence = input("Enter a sentence: ")

sentence = sentence.lower().replace(',', '').replace('.', '')

words = sentence.split()

word\_freq = {}

for word in words:

if word in word\_freq:

word\_freq[word] += 1

else:

word\_freq[word] = 1

for word in sorted(word\_freq.keys()):

print(f"{word}:{word\_freq[word]}")

Question 3:

Define a class Person and its two child classes: Male and Female. All classes have a

method “getGender” which can print “Male” for Male class and “Female” for Female

class.

Ans3

class Person:

def getGender(self):

pass

class Male(Person):

def getGender(self):

print("Male")

class Female(Person):

def getGender(self):

print("Female")

Question 4:

Please write a program to generate all sentences where subject is in ["I", "You"] and

verb is in ["Play", "Love"] and the object is in ["Hockey","Football"].

Ans4

subjects = ["I", "You"]

verbs = ["Play", "Love"]

objects = ["Hockey", "Football"]

for subject in subjects:

for verb in verbs:

for obj in objects:

sentence = f"{subject} {verb} {obj}."

print(sentence)

Question 5:

Please write a program to compress and decompress the string "hello world!hello

world!hello world!hello world!".

Ans5

import gzip

string = b"hello world!hello world!hello world!hello world!"

compressed = gzip.compress(string)

decompressed = gzip.decompress(compressed)

print(decompressed.decode())

Question 6:

Please write a binary search function which searches an item in a sorted list. The

function should return the index of element to be searched in the list.

Ans6

def binary\_search(arr, x):

start = 0

end = len(arr) - 1

while start <= end:

mid = (start + end) // 2

if arr[mid] == x:

return mid

elif arr[mid] < x:

start = mid + 1

else:

end = mid - 1

return -1