

MID-TERM EXAMINATION
(Course Name: B.Tech. (Semester: I))
(October, 2024) OFF LINE mode

Subject Code: BAI-101	Subject: Programming with Python
Time : 1 ½ Hours	Maximum Marks : 30
Note: Q. 1 is compulsory.	

Q1	Write the output of the following program with an explanation of each step	(2.5*4)	
	<p>(a) Assume that 1234 is passed to following code</p> <pre> num=int(input("Enter a number")) s_num=1 while num !=0: digits=num%10 s_num=s_num+digits num=num//10 print(s_num) </pre>	UNIT-1	CO ₁
	<p>(b)</p> <pre> given = '14[576]91' word = '' # empty string index = 0 flag = False while index < len(given): char = given[index] if char == '[': flag = True if flag and char not in '[]': word += char if char == ']': break index += 1 print(int(word)) </pre>	UNIT-1	
	<p>(c)</p> <pre> sentence = 'this,is,not,as,hard,as,you,think,it,is' D = dict() for word in sentence.split(','): for char in word: if char not in D: D[char] = 0 D[char] += 1 mchar, mval = '', 0 alpha = 'abcdefghijklmnopqrstuvwxyz' for char in alpha: if char not in D: continue if D[char] >= mval: mval = D[char] mchar = char print(mchar) </pre>	UNIT-2	CO ₂

	<p>(d)(i)</p> <pre>L=[x*10 if x%10==0 else x*5 for x in range(1,10)] print(L)</pre> <p>(ii)</p> <pre>L = [1, 5, 3, 2, 4, 9, 2, 8, 4, 1, 3, 6] # Initial list n = len(L) # Get the length of the list for i in range(1, n): if L[i - 1] > L[i]: temp = L[i - 1] L[i - 1] = L[i] L[i] = temp print(L[-1])</pre>	UNIT-2
UNIT-1 (CO ₁)		
Q2	(Attempt any Two Parts)	(5,5)
(a)	(a) What is the difference between if, if-else, and if-elif-else statements? Provide an example where if-elif-else is necessary.	
(b)	(b) Explain the difference between the == and is operators when comparing objects in Python. How would you compare two strings?	
(c)	(C)(i) Explain how the break and continue statements are used in loops. Give an example where each would be appropriate. (ii) In which scenarios would you prefer a while loop over a for loop? Provide examples.	
UNIT-2 (CO ₂)		
Q3	(Attempt any Two Parts)	(5,5)
(a)	<p>Every even number greater than 2 is sum of two prime numbers.</p> <p>For Examples:</p> <ul style="list-style-type: none"> 12=5+7 26= (3+ 23) or (7+19) or (13+ 13). <p>The task is to write a Python program that takes n as input from the keyboard, where n is a positive even number greater than 2, and prints a list of tuples (a, b). In each tuple, both a and b should be prime numbers such that:</p> <ul style="list-style-type: none"> a ≤ b The sum of a and b should equal n. <p>Examples:</p> <ul style="list-style-type: none"> For n = 12, it will print [(5, 7)]. For n = 26, it will print [(3, 23), (7, 19), (13, 13)] 	
(b)	<p>Accept a sequence of words as input and print the shortest word in the sequence. The input will have n + 1 lines, where n denotes the number of terms in the sequence. The ith line in the input will contain the ith word in the sequence for 1 ≤ i ≤ n. The last line of the input will always be the string qwerty. This string is not a part of the sequence. If there are multiple words that have the same minimum length, print the first such occurrence.</p> <p>Example: Input: abc abcd aa bb qwerty Output: aa</p> <p>Note: While taking input from the keyboard, enter each word on a new line. When the word 'qwerty' is entered, stop taking further input and print the output.</p>	
(c)	<p>Write a program that takes a list L of integers and print a list [odd, even], where:</p> <ul style="list-style-type: none"> odd is the sum of squares of all the odd numbers in L. even is the sum of squares of all the even numbers in L. <p>Example:</p> <p>Input:[1, 3, 5] Output: [35, 0] Input [-1, -2, 3, 7] Output: [59, 4]</p>	