Roll no. 2519258

Name of the Program & Semester: B.Tech I SEM.
Name of the Course: Introduction to Python Programming
Course Code: TCS 102
Time: 1.5 hours

Maximum Marks: 50

Note:
(i) Answer **all the questions** by choosing ***any one of the sub questions.***
(ii) Each question carries 10 marks

Q.1	**(10 marks)**	
a)	Compare and contrast between hardware and software. Discuss system software and application software with the help of an example.	CO1
	OR	
b)	Illustrate the block diagram of a computer system and explain how its key components—Input Unit, Output Unit, Memory Unit, and the Central Processing Unit function.	CO1
Q.2	**(10 marks)**	
a)	Describe different types of operating system. Mention different functions of an operating system.	CO1
	OR	
b)	Draw a flowchart and develop a python program to input two integers (no_of_years, current_salary) from the user and calculate the new salary based on the following conditions: if no_of_years >= 10 then increment of 5% if no_of_years >= 5 then increment of 10% if no_of_years >= 2 then increment of 20% if no_of_years < 2 then no increment	CO2
Q.3	**(10 marks)**	
a)	Discuss keywords and identifiers in python with the help of suitable examples. Describe the rules of naming an identifier in python with the help of examples.	CO2
	OR	
b)	Implement a menu driven program to take a sentence and choice as an input from the user and perform the following operations based on user's choice: a. Convert the sentence into Title case. b. Find the count of word "the" in the sentence. c. Display the last 5 characters of the sentence. d. Check if the word "python" is present in a sentence or not. e. Check if the sentence starts with the word "The" or not.	CO2

Q.4	**(10 marks)**	

a)	Predict the output of the following Python code and justify your answer. Assume below code snippets are free from syntax errors.
	
	i)
	def find_sum(x, y=2):
	return x+y
	print(find_sum (3))
	print(find_sum (4, 3))
	
	ii)
	s = "I like Python"
	v = "aeiou"
	for x in s:
	if x not in v:
	print(x)
	
	iii)
	for i in range(11):
	if i%2==0:
	print(2**i)
	iv)
	myfunc= lambda a,b: 2*(a+b)
	print(myfunc(3,2))
	
	v)
	def func(n):
	if n==0:
	return 0
	return n+func(n-2)
	print(func(5))
		CO2, CO3

	OR	
b)	Discuss positional arguments, keyword arguments, variable length positional arguments and variable length keyword arguments with the help of code snippets.	CO2, CO3
Q.5	**(10 marks)**	
a)	Implement a menu driven program that will take a number and choice as an input from the user and perform the following operations based on user choice: a. A function to check if number is prime or not. b. A function to reverse a number. a. A function to check if sum of divisors is greater than the number or not.	CO2, CO3
	OR	
b)	Rahul has 100 chocolates that he wants to distribute among students. Develop a python program that will ask the user to input the number of students and calculate how many chocolate each student will get. Since students are mischievous they tend to insert invalid inputs handle the scenarios with the help of try except and finally.	CO2