Reg.No: 24606036

#### VELAGAPUDIRAMAKRISHNASIDDHARTHAENGINEERINGCOLLEGE (DeemedtobeUniversity)

# I B. Tech SUMMATIVEASSESSMENT, November 2024

FirstSemester AY:24-25

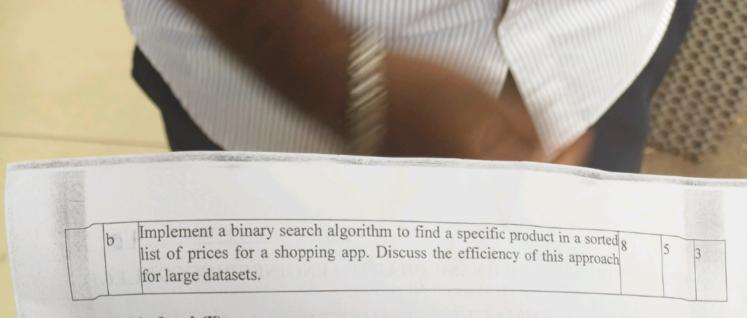
#### COMMON TO ALL BRANCHES 24CS101-PROBLEMSOLVINGWITHPYTHON

Tirne:120Minutes

Max.Marks: 80

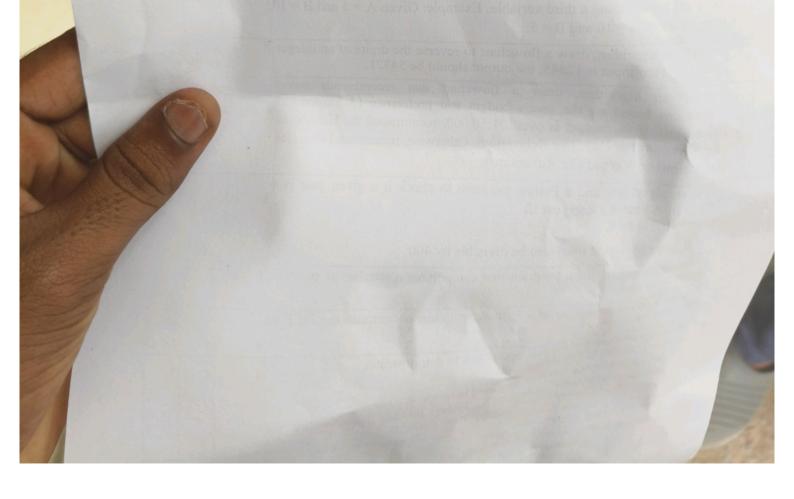
## ANSWERALLQUESTIONS

		u tions)	Marks	CO	k
Q.:	No a	Questions(Answer all questions)  Write an algorithm, draw a flowchart to swap the values of two variables with and without using a third variable. Example: Given $A = 5$ and $B = 10$ ,	8	1	2
		after the swap, $A = 10$ and $B - 3$ .  Develop an algorithm, draw a flowchart to reverse the digits of an integer.	8	1	2
2	a	Develop an algorithm, draw a flowchart that recommends travel destinations based on the user's budget and preference (Adventure or destinations). If the budget is over \$\sumsymbol{1}\$,50,000, recommend the Himalayas (for Adventure) or Paris (for Relaxation). Otherwise, recommend Goa (for Delayation) or Waynad (for Adventure).	8	2	2
	1	Write an algorithm, and a Python program to check if a given year is a leap year. A year is a leap year if:  It is divisible by 4,		2	2
	a	Write an algorithm, and a program that categorizes a number as positive,		3	3
3	ь	Design a flowchart and write a Python program to compute the HCF of	8	3	3
4	a	Develop a program that uses set operations to demonstrate:  • Union (combining two sets of data).  • Intersection (finding common elements between sets).  • Difference (elements unique to one set). Include functionality for items from the sets.		1	2
	b	Create a program that defines several functions to perform tasks like:  • Calculating the area of a rectangle.  • Finding the maximum of a list of numbers.  Demonstrate variable scope by	8	1	2
	5 a	write a program that demonstrates variable lifetime by defining local and global variables within and outside of functions. Show how global variables retain their values across function calls.	8	5	3



CognitiveLevels(K):
K1-Remember, K2-Understand, K3-Apply, K4-Analyze, K5-Evaluate, K6-Create

Course	Outcomes	BTL
Outcomes	NORTHWENTHON	Levels
C01	Infer basic concepts of computers and program design tools.	2
CO2	Explain Python primitives for solving problems.	2
CO3	Apply problem solving strategies and techniques.	3
CO4	Illustrate python function, classes and modules to solve engineering problems.	2
CO5	Use advanced problem solving techniques to solve engineering problems.	3



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### 24CS101-PROBLEM SOLVING WITH PYTHON

Time:120Minutes

Max.Marks:80

#### ANSWER ALL QUESTIONS

	(A manufactions)	Marks	CO	K
Q.N.	a. Create an algorithm, draw a flowchart that calculates the same of set of numbers. Example: Given the numbers 12; 15, 7, 10, the program	8	1	2
-	b. Write an algorithm, draw a flowchart that generates the first 'n' terms of the Fibonacci sequence. Example: Generate the first 10 terms: 0, 1, 1, 2, 3,	8	1	2
	the Fibonacci sequence. Example. Generate are 5, 8, 13, 21, 34.			
	operations (addition, subtraction, multiplication, division) operators to compare two user-inputted numbers and display the results	0	. 2	2
2	Write an algorithm and a program that prints numbers from 1 to 10 using a while loop.		2	2
	a Write an algorithm, and a program that prints a multiplication table up to 10 using nested loops.		3	3
3	Design a flowchart and write a Python program to calculate the Least Common Multiple (LCM) of two integers.	8	3	3
	Develop a program to demonstrate how to store and retrieve data using Python data structures: tuples, lists, sets, and dictionaries. Implement examples for:  • Adding and removing elements in lists.  • Accessing elements in a tuple.  • Performing set operations like union, intersection, and difference.  • Using a dictionary to store key-value pairs. Compare the advantages a limitations of each data structure.	and	4	2
b c	Write a program using list comprehensions to generate lists based vertain conditions, such as: Generating a list of squares of even numbers between 1 and 20. Filtering a list of strings based on whether they start with a spectter.	cific	8	4
01 a	Develop a program using lambda functions to; Sort a list of tuples be a specific criteria. Filter a list of numbers to retain only those greater certain value.	than	8	5
D	evelop a function for a math app that calculates the factorial umber. Additionally, implement a recursive function to generate the	of a e nth	8	5

Eihannaai			
Fibonacci	number.		

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