St. Vincent Pallotti College of Engineering & Technology

(An Autonomous Institute)

B. Tech First Year Computer Science and Engineering (DATA SCIENCE)

Mid Semester Examination- AY 2024-25

Course: - Logic Building Using C **Course Code: - 24DS103T**

Duration: - 1 Hour & 30 Min **Max. Marks: -** 30

Instructions to Candidate –
1) Question No. 1 is compulsory.
2) Solve Que. No. 02 OR Que. No. 03
3) Solve Que. No. 04 OR Que. No. 05
4) Solve Que. No. 06 OR Que. No. 07
5) All Questions carry marks as indicated
6) Use of Non Programmable calculator is allowed.
7) Assume suitable data when necessary.

Q. No.	Description of Question	Marks	[CO]	[BTL]
Q.1(a)	Describe the linked list used in programing. Explain with the help of diagram.	02	CO1	2
Q.1(b)	Discuss the conventions of flowchart.	02	CO2	2
Q.1(c)	Explain the conditional operator with an example.	01	CO3	1
Q.2(a)	Identify the first ten terms of the Fibonacci sequence and explain how each term is generated. Also state the Fibonacci sequence.	05	CO1	2
Q.2(b)	Two numbers are input through the keyboard into two locations C and D. Construct a program to interchange the contents of C and D.	05	CO1	5

Q.3(a)	What would be the output of the following programs:
	`#include<stdio.h>`
	`void main( )`
	`{`
	`int i = 2, j = 3, k, l ;`
	`float a, b ;`
	`k = i / j * j ;`
	`l = j / i * i ;`
	`a = i / j * j ;`
	`b = j / i * i ;`
	`printf( "%d %d %f %f", k, l, a, b ) ;`
	`}`
		05	CO1	4

Q.3(b)	Describe an Armstrong number and identify whether 153 is an Armstrong number. Show the mathematics used for identifying step by step.	05	CO1	2
Q.4(a)	Discuss the pseudo code and algorithm conventions using an example.	05	CO2	2
Q.4(b)	Any year is input through the keyboard. Prepare an algorithm and draw flow chart to determine whether the year is a leap year or not.	05	CO2	5
Q.5(a)	Demonstrate how to write algorithm and flowchart using an example.	05	CO2	3
Q.5(b)	Design a pseudo code and algorithm to obtain the reversed number and to determine whether the original and reversed numbers are equal or not. A three-	05	CO2	5

	digit number is entered through the keyboard.			
Q.6(a)	Develop a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees. Give proper output for the user.	05	CO3	5
Q.7(a)	If a = 10, b = 12, c = 0, evaluate the expressions: 1. a != 6 && b > 5 2. a == 9 || b < 3 3. ! (a < 10) 4. ! (a > 5 && c) 5. && c != 8 || !c	05	CO3	6