## May 2025

B. Tech. (Second Semester)

Programming for Problem Solving (ESC-103/CSU-101-V)

Time: 3 Hours]

[Maximum Marks: 75

Note: It is compulsory to answer all the questions

(1.5 marks each) of Part A in short. Answer any

four questions from Part B in detail. Different
sub-parts of a question are to be attempted
adjacent to each other.

## PartA

- 1. (a) What is an Algorithm ? Give an example. 1.5
  - (b) Differentiate between iteration and recursion with an example.1.5
  - (c) Define a variable. How is it different from a constant?

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	ramming ?		1.5
		data types in C	
		and initialize a	ın array in
C2			1.5
(g) Wha	t is the differe	nce between w	hile loop
and d	lo-while loop ?		1.5
(h) What	is a Pointer ?	How is it diffe	rent from
a non	nal variable?		1.5
i) Explai	in the use of t	he 'return' stat	ement in
function	ons.		1.5
) What	are the advanta	ages of using a	functions
in C?			1.5

find the largest of three numbers. 10

(b) Write a C program to swap two numbers

without using a third variable.

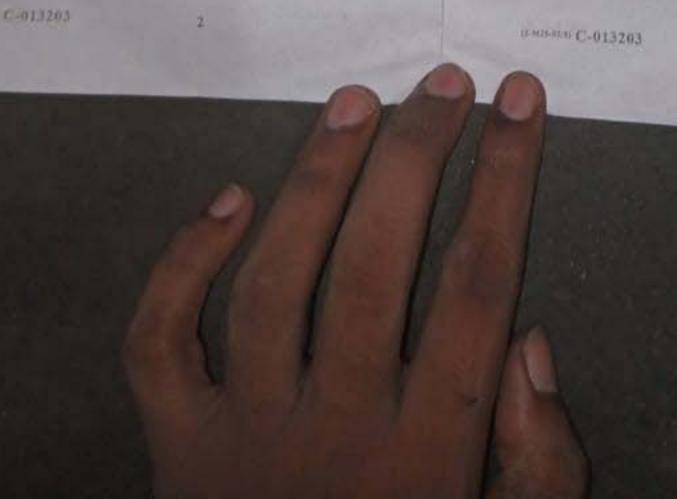
ops in C with	Explain different types of lo	(a)	3.	
5	suitable examples.			
ether a number	Write a C program to check wh	(b)		
10	is prime or not.			
he sum of all	Write a C program to find t	(a)	4.	
7	elements in a 1D array.			
d two matrices	Implement a C program to ad	(b)		
8	using a 2D array.			
te a program to	What is a structure in C ? Wri	(a)	5.	
three students	store and display details of			
	using simetures			

6. (a) What is Recursion ? Write a recursive function in C for Fibonacci Series.

(b) What is a Pointer ? Write a C program to find the sum of two numbers using pointers.

Explain the concept of sorting with C program

of Bubble, Section and Insertion Sort. 10



- 7. (a) Discuss different file handling operations in C. Write a C program to read and write student records to a file.
  - (b) Explain the difference between Linear Search and Binary Search with an example. 5

