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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

M.C.A. (First Semester) Regular Examinations, January – 2025

MCA23101 – C Programming and Data Structures

(MCA)

Time: 3 hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Explain the use of queue.	CO4	K2
b. How the elements of 2-D array are stored in the memory Explain briefly?	CO2	K2
c. Write the operations performed on the list.	CO4	K2
d. List the disadvantages of sparse matrix.	CO2	K3
e. Define recursion.	CO2	K3

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Write a program to input 3 sides of a triangle and then find area of a triangle by finding s =(a+b+c)/2 where a,b,c are 3 sides.	5	CO1	K2
b. Write a c program to find Factorial of a number.	5	CO1	K2
(OR)			
c. Write a C program to find transpose of a matrix.	5	CO1	K2
d. Write a C program to check number is perfect number or not	5	CO1	K2
3.a. Write recursive program to print Fibonacci series for n terms.	5	CO2	K2
b. Write a C program to display all prime numbers between 1 to 100 by using function.	5	CO2	K2
(OR)			
c. Write C program to accept the details of employee and display them using structure. Details consist of Employee ID, Name, Designation, Department, Salary.	5	CO2	K2
d. Write C program to read the details of two workers and calculate total payment of workers using structure.	5	CO2	K2
4.a. Explain the working of selection sort with suitable example	5	CO3	K3
b. Write down the algorithm for selection sort.	5	CO3	K3
(OR)			
c. Difference between bubble sort and selection sort.	5	CO3	K2
d. Explain the workflow of linear search.	5	CO3	K2
5.a. Explain Array Implementation of Stack.	5	CO4	K2
b. Explain the steps involved creating a single linked list.	5	CO4	K2
(OR)			
c. Define Graph. Explain different Terminologies in Graph.	5	CO5	K2
d. Differentiate between DFS and BFS.	5	CO5	K2
6.a. Explain the steps to delete an element form the single linked list.	5	CO4	K2

b.	Explain the steps involved in insertion at the end of single linked list	5	CO4	K2
	(OR)			
c.	Explain topological sort with example.	5	CO5	K2
d.	Explain BFS breiefly.	5	CO5	K2

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