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Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

M.C.A. (First Semester - Regular) Examinations, January – 2026

MCA251001 – C Programming and Data Structures
(MCA)

Time: 2 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. Difference between while and do-while loop.	CO1	K2
b. What are the elements of user defined function?	CO2	K2
c. Define sorting and searching.	CO3	K3
d. Define priority queue.	CO4	K2
e. Define tree and graph.	CO5	K2

PART – B **(10 x5=50 Marks)**

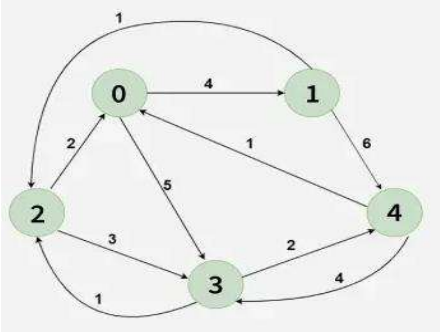
Answer ***ALL*** questions	Marks	CO #	Blooms Level
2.a Explain different types of operators with example.	5	CO1	K3
b. Write a c program to check whether a number is palindrome or not.	5	CO1	K2
(OR)			
c. Write an algorithm and draw a flowchart to find greatest among three numbers.	5	CO1	K3
d. Write a c program to find transpose of a matrix.	5	CO1	K2
3.a. Create a structure called "Student" with members name, age, and total marks. Write a C program to input data for two students, display their information, and find the average of total marks.	5	CO2	K2
b. Difference between call by value call by address.	5	CO2	K3
(OR)			
c. Explain recursion with example.	5	CO2	K2
d. Write a program in C to find the square of any number using the function.	5	CO2	K3
4.a. Define data structure. Explain different types of data structures.	5	CO3	K2
b. Write an algorithm to perform linear search.	5	CO3	K2
(OR)			
c. Write an algorithm for selection sort and explain its working with a suitable example.	10	CO3	K2
5.a. Write an algorithm to insert a node at the end of a double linked list.	5	CO4	K2
b. Convert the following infix expression to postfix and prefix without using stack. A + B * (C - D) / (P - R)	5	CO4	K2

(OR)

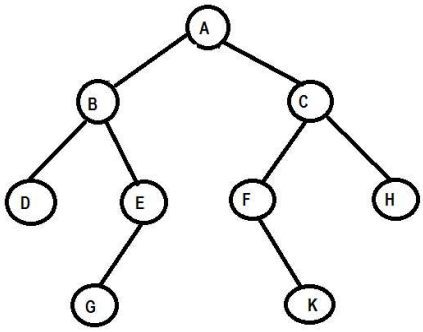
c.	Write an algorithm for insertion and deletion operation on stack. Explain its working with an example.	10	CO4	K3
6.a.	Explain all the tree terminologies with example.	5	CO5	K2
b.	Explain depth first search algorithm with example.	5	CO5	K2

(OR)

c.	Find the shortest path for all nodes using Floyd-warshall's shortest path algorithm for the following graph.	5	CO5	K3



d.	Perform all the binary tree traversal on this tree and find the order for each traversal.	5	CO5	K3



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