BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-IV INFORMATION TECHNOLOGY : SUMMER : 2025
SUBJECT: APPLIED ALGORITHM

Day : Wednesday
Date : 04/06/2025

S-29319-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

NB :
1. All questions are COMPULSORY.
2. Figures to the right indicate FULL marks for the question.
3. Draw neat labelled diagrams WHEREVER necessary.
4. Assume suitable data, if necessary.

Q. 1	How do we analyze an algorithm using best-case, average-case, and worst-case complexity?	(10)
	OR	
Q. 1	Analyze the performance of an algorithm using time and space measurements	(10)
Q. 2	How can we compare and analyze Brute-Force, Heuristics, Greedy, and Divide and Conquer techniques using problem-solving examples?	(10)
	OR	
Q. 2	Apply and explain illustration for Divide and Conquer techniques for Problem-Solving.	(10)
Q. 3	Describe Branch and Bound algorithms for Problem-Solving in detail.	(10)
	OR	
Q. 3	Describe Dynamic Programming and its role in solving problems?	(10)
Q. 4	Highlight the differences between B Trees and B+ Trees and their common uses.	(10)
	OR	
Q. 4	Discuss how Single Source Shortest Path algorithms are used to find the shortest path in a graph.	(10)
Q. 5	Analyze and explain Computability of Algorithms.	(10)
	OR	
Q. 5	Analyze and explain NP-complete and NP-hard.	(10)
Q. 6	Define P SPACE and explain its significance in the class of problems beyond NP.	(10)
	OR	
Q. 6	What are Quantum Algorithms, and how do they differ from classical algorithms in solving problems?	(10)

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