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Quiz-1 Examination: Summer-2025

Course Code: CIS 212 (Batch: 20)

Course Title: Algorithm

Time: 30 Minutes **Total Marks: 15**

1.	What is complexity? Determine the **time complexity** of the following code using Big-O notation.
	A.
	`for (int i = 0; i < m; i++) {`
	`  for (int j = 0; j < n; j++) {`
	`  for (int k = 0; k < 1000; k++) {`
	`  cout << i * j * k << endl;`
	`  }`
	`  }`
	`}`
	B.
	`for (int i = n; i > 0; i /= 2) {`
	`  for (int j = 0; j < n; j++) {`
	`  cout << i + j << endl;`
	`  }`
	`}`
		5

2	Trace the steps to sort [38, 27, 43, 3, 9, 82, 10] using **Merge Sort**. Show the recursion tree for splitting and merging.	5
3	Is Merge Sort an InPlace algorithm? Give a comparative analysis of **Insertion**, **Merge** & **Quick Sort** for: **A.** Best Case. **B.** Worst Case.	5

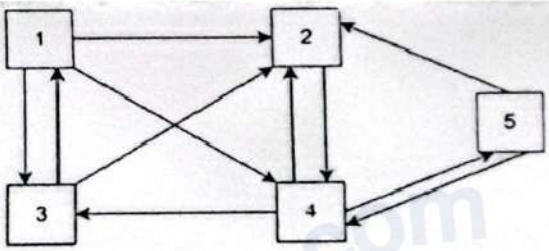
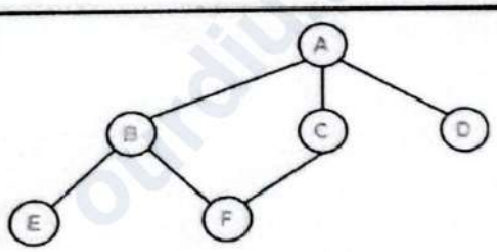
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Quiz-2 Examination: Summer-2025

Course Code: CIS 212 (Batch: 20)

Course Title: Algorithm

Time: 30 Minutes **Total Marks: 15**

1.	A binary tree T has 9 nodes. The inorder and preorder traversals of T yield the following sequences of nodes: **Inorder:** E A C K F H D B G **Preorder**: F A E K C D H G B I. Draw the tree T. II. Find the order of tree T. III. Listed the leaf nodes of tree T. IV. Listed the siblings of node K. V. Show the internal vertices of the tree.	5
2	Define **DAG(Directed Acyclic Graph)**. Construct an **adjacency matrix** and **adjacency list** for the directed graph. 	5
3	 Apply **Breadth First Search (BFS)** and **Depth First Search(DFS)** algorithm and find the order of visiting nodes. Start Node= A.	5

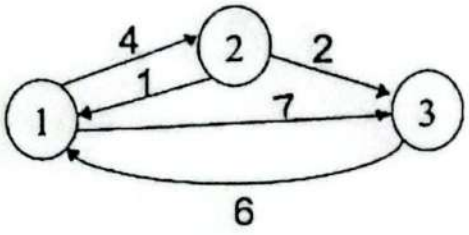
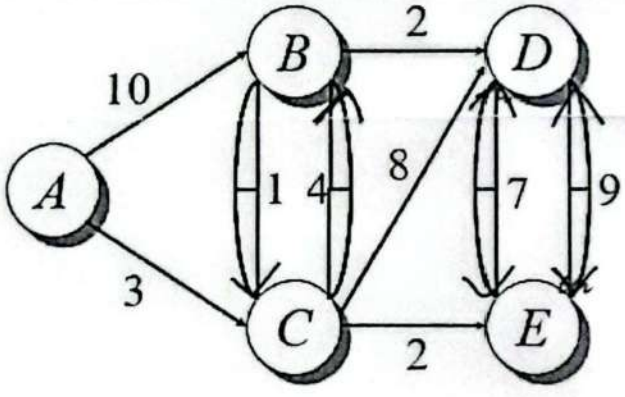
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Quiz-3 Examination: Summer-2025

Course Code: CIS 132 (Batch: 20)

Course Title: Algorithm

Time: 30 Minutes **Total Marks: 15**

1.	 Compute the initial matrices $A^{(0)}$ and final matrices $A^{(k)}$ to determine the all pair shortest paths using **Floyd Warshall** Algorithm.	5
2	How does the **Bellman-Ford** algorithm detect negative-weight cycles? Explain the condition used for this check. What do you mean by **Relaxation**? Write the pseudocode for **Relaxation.**	5
3	 Apply **Dijkstra** algorithm on the given graph. Source node=A. Show the Queue states and Order of visiting nodes.	5

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