Questions:

PART-A (Multiple Choice / Fill in the Blanks / Match the Following / Short Answer Type Questions)
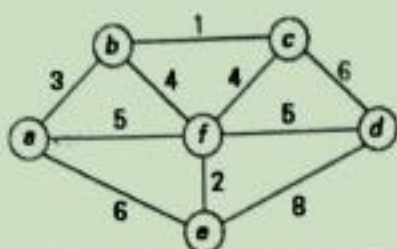
			CO#	BL#	Marks
1.	a)	Worst case time complexity of quick sort is................	CO1	BL1	1 M
	b)	Define an algorithm	CO1	BL1	1 M
	c)	Porformance of an algorithm is depends on................ and	CO1	BL2	1 M
	d)	Prove that $3n+2 = \Theta(n)$	CO1	BL2	1 M
	e)	Define Theta notation.	CO1	BL2	1 M
	f)	What are the applications of greedy approach	CO2	BL1	1 M
	g)	Kruskal's algorithm is .... method	CO2	BL1	1 M
	h)	Discuss knapsack problem	CO2	BL1	1 M
	i)	Given a weighted graph where weights of all edges are unique then there is always a unique shortest path from source to a destination (True / False)	CO2	BL1	1 M
	j)	Define minimal cost spanning tree.	CO2	BL1	1 M

PART-B (Descriptive Questions)

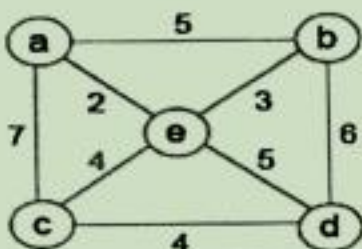|		CO#	BL#	Marks
2.	Solve the recurrence relation using Substitution Method $$T(n) = \begin{cases} 1, & n=1 \\ 2T(n/2)+n, & n>1 \end{cases}$$	CO1	BL2	5 M
3.	Sort the given list using merge sort [50, 25, 6, 20, 60, 30, 90, 10]	CO1	BL3	5 M
4.	Write an algorithm to find out the maximum and minimum of array elements	CO1	BL2	5 M
	using divide and conquer method. Derive its time complexity.			
5.	Calculate the minimum cost spanning tree of the following graph using Prim's algorithm.	CO2	BL3	5 M
6.	Write an algorithm for the job sequencing problem using greedy approach.	CO2	BL2	5 M
7.	Apply the Dijkstra's algorithm to the following graph to find the single source shortest path. Consider vertex 'a' as the source vertex.	CO2	BL3	5 M