

Code No: **R32053** 

**R10** 

Set No. 1

## III B.Tech II Semester Supplementary Examinations, November – 2017 DESIGN AND ANALYSIS OF ALGORITHMS

(Common to Computer Science and Engineering and Information Technology)

Time: 3 hours Max. Marks: 75

## Answer any FIVE Questions All Questions carry equal marks

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1	a)	Compare Big-oh notation and Little-oh notation. Illustrate with an example.	[8M]
	b)	Describe best case, average case and worst case efficiency of an algorithm.	[7M]
2	a)	Describe the adjacency list representation of the graphs.	[6M]
	b)	What is Hamiltonian cycle? Discuss a backtracking algorithm that finds all the Hamiltonaian cycles in a graph	[9M]
3	a)	Analyze the time complexity of merge sort for best, average and worst cases.	[8M]
	b)	Discuss in detail about Greedy methods.	[7M]
4	a)	What is minimum spanning tree? Explain the kruskal's algorithm to find the	
	1- \	minimum spanning by taking an illustrative graph.	[10M]
	b)	Write a short note on BFS.	[5M]
5	a)	Write an algorithm for 0/1 Knapsack Problem using Dynamic Programming.	[7M]
	b)	Consider three stages of a system with $r1=0.3, r2=0.5, r3=0.2$ and $c1=30, c2=20, c3=30$ Where the total cost of the system is C=80 and $u1=2, u2=3, u3=2$ find the reliability design.	[8M]
6	a)	for the network with the cost adjacency matrix. Assume node 1 as the home city.  0 10 15 30 4 0 9 11 5 13 0 10	[8M]
	b)	7 7 8 0 Explain the matrix chain multiplication with an example	[7M]
	U)	Explain the matrix chain marupheation with an example	[/141]
7	a)	Describe the Backtracking technique to m-coloring graph. Explain with an example.	[7M]
	b)	Let w=(5,10,10,25) and m=25.Find all possible subsets of W that sum to M using fixed tuple length and variable tuple length.	[8M]
8	a)	Give brief description about the cooks theorem.	[8M]
	b)	Briefly explain NP-hard and NP-completeness with example.	[7M]
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