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TCS-503	1225	Printed Pages :
Paper Code & Roll	No, to be filled in you	
Roll No.	t Chwich in in	la fet i veilă
B. Te	ech. III Year (\	/ Sem.)
Odd S	emester Examina	tion-2015
DESIGN 8	& ANALYSIS OF A	LGORITHM
Time: 3 Hours]	5 20 25 20 25 15	[Maximum Marks :100
	Unit - I	
Attempt any Four	ana-crassionnado.	(4X5=20)
What do you algorithm.	mean by algorithm? Wi	rite the characteristics of
	understand by asymptotic notation	otic notations? Describe
3. Discuss any or	ne sorting algorithm havin	ng linear time complexity.
4. What do you example.	mean by recursion? Exp	olain your answer with an
5. Illustrate the f	functioning of Heap sort	on the following array
A=(25,57,48	,37,12,92,86,33)	

Unit II

Attempt any Four A tody of bell and at A 4 9 6 (4X5=20)

Printed Pages: 4

- Show the steps of inserting the key 41,38,31,12,19,8 into initially 1. empty red - black tree. B. Tech. III Ye
- Prove that maximum degree of any node in a n node binomial 2. tree is log n.
- Create B tree of order 5 from the following bits of data items: 20,30,35,85,10,55,60,25,5,65,70,75,15,40,50,80,45
- Explain searching operation in B-tree. 4.
- What is a disjoint data structure? How running time of disjoint 5. set data structure is analysed?

Unit III

Attempt any Two

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(2X10=20)

- What steps are used in dynamic programming approach? 1. Discuss the 0/1 knapsack problem with respect to dynamic programming. is greedy method equally applicable for above problem.
- Discuss backtracking problem solving approach with the help 2. of an example.

A = 25 37,48 37 12 92 ES ES

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 What is greedy algorithm? Explain activity selection problem and give its solution by using greedy approach with its analysis and correctness.

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Attempt any Two

(2X10=20)

Discuss Travelling salesman Problem with complexity analysis
of each.

acting trace problem and water the p

- Explain Ford- Fulkerson algorithm to find maximum flow in the network and find its complexity. Support Your answer with a suitable example.
- Given a graph G=(V,E) and let V1 and V be two distinct vertices.
 Explain how to modify Dijekstra's shortest path algorithm to determine the number of distinct shortest path algorithm from U to V. Also, comment on whether Dijekstra's shortest path algorithm work correctly if weight are negative.

Unit V

Attempt any Two

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(2X10=20)

 What are the approximation algorithms? What is meant by a P(n) approximation algorithm? Give an approximation algorithm for travelling sales problem.

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(G2-01X5)

0.19

- Explain Rabin-Korp algorithm for strict matching working module q=11, how many spurious bits does Rabin-Korp matcher encounter in the text T=3141592653598793 when looping for pattern p=26?
- Explain NP hard and NP complete problems and also define the
 polynomial time problem and write the procedure to solve NP
 Problems.

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before the complexery Support Your answer with a

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