Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018
Course Code: IT202
Course Name: ALGORITHM ANALYSIS AND DESIGN
Max. Marks: 100   Duration: 3 Hours

PART A
Answer any 2 questions

1	a.	What is an algorithm? What are the criteria of an algorithm?	(5)
	b.	Explain quick sort algorithm andanalyze its complexity	(10)
2	a.	What is the notion behind the divide and conquer method? Apply divide and conquer strategy to perform merge sort	(9)
	b.	Solve the recurrence equation $T(n)=3T(n/4)+n$ using iteration method	(6)
3	a.	What is an asymptotic notation? Explain how complexity analysis is done with each of them ?	(8)
	b.	What are recursion trees? Solve $T(n)= 2T(n/2) + C$ using recursion tree.	(7)

PART B
Answer any 2 questions

4	a.	Write note on back-tracking	(3)
	b.	What is a minimum spanning tree?Explain Prim's algorithm to find the minimum spanning tree of a graph	(12)
5	a.	What is greedy strategy? Give example	(5)
	b.	Give the Monte-Carlo method.	(10)
6	a.	What is 15-puzzle problem? How it can be solved?	(9)
	b.	Explain the general Knapsack problem. Suggest a solution for the problem.	(6)

PART C
Answer any 2 questions

7	a.	What is principle of optimality?	(5)
	b.	Give Rabin-Karp algorithm for string matching? Explain with example Describe approximation algorithm.	(10)
	c.		(5)
8	a.	Differentiate between deterministic and non-deterministic algorithms?	(5)
	b.	What are comparison trees?	(5)
	c.	Describe the Vertex cover algorithm. Give an example	(10)
9	a.	What are multistage graph problems? Give forward graph approach to solve the multistage problem	(12)
	b.	What are randomized algorithms? Illustrate LAS-Vegas randomized algorithm for performing quick sort on a set of integers.	(8)

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