Code No: P18ITT04

HALL TICKET NUMBER

PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
III B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH/APRIL – 2023
DESIGN AND ANALYSIS OF ALGORITHMS
(Common to IT,AIDS,AIML Branches)

Time: 3 hours Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-A

Answer all the questions in Part-A (5X2=10M)

Q.No.		Questions	Marks	CO	KL
1.	a)	Compute the average case time complexity of quick sort	[2M]	1	2
	b)	Differentiate variable length encoding and fixed length encoding	[2M]	2	2
	c)	What is Knapsack problem?	[2M]	3	1
	d)	Define Sum of Subsets problem	[2M]	4	1
	e)	What is the Knuth-Morris-Pratt algorithm?	[2M]	5	1

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.		Questions	Marks	CO	KL
UNIT-I					
2.	a)	Discuss various the asymptotic notations used for best case, average case and worst case analysis of algorithms	[5M]	1	1
	b)	Explain in detail quick sorting method with example.	[5M]	1	2
OR					
3.		Illustrate merge sort algorithm and discuss time complexity	[10M]	1	2
UNIT-II					
4.		Explain kruskals algorithm with suitable example.	[10M]	2	2
OR					
5.		Explain the general principle of Greedy method and also list the applications of Greedy method.	[10M]	2	2
UNIT-III					
6.	a)	List out the features of dynamic programming.	[3M]	3	1
	b)	Describe the travelling salesman problem and discuss how to solve it using dynamic programming	[7M]	3	2
OR					
7		Explain the Single source shortest path problem with an example.	[10M]	3	2
UNIT-IV					
8.	a)	Write an algorithm for Hamiltonian cycle with an example.	[5M]	4	2
	b)	Explain 15-Puzzle problem with example using branch and bound?	[5M]	4	2
OR					

9.		Explain the Graph – coloring problem. And draw the state space tree for m=3 colors n=4 vertices graph?	[10M]	4	2
		UNIT-V			
10.		List out the applications of pattern matching algorithm. Discuss pattern matching algorithms with suitable example. Mention its types.	[10M]	5	2
		OR			
11.		Explain Knuth-Morris-Pratt algorithm with suitable example.	[10M]	5	2

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