

G.PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY

(Accredited by NAAC with 'A' Grade of UGC, Approved by AICTE, New Delhi & Permanently Affiliated to JNTUA, Ananthapuramu)

(Recognized by UGC under 2(f) & 12(B) & ISO 9001: 2008 Certified Institution)

(I B.Tech II Semester (R15) II-MID Descriptive Examination May 2017)

DATA STRUCTURES ((15A05201)

TIME: 90 MINUTES

(COMPUTER SCIENCE & ENGINEERING)

MAX MARKS: 30

Date:10-5-17

SET NO: I

PART-I(2*5=10M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level	
1	A	Define Complete binary tree with an example.	2M	III	C118.1	Remember
	B	Define Complete graph with an example	2M	III	C118.1	Remember
	C	Define collating sequence	2M	IV	C118.2	Remember
	D	Distinguish tree and graph	2M	III	C118.1	Analyze
	E	Compare isolated vertex and pendant vertex	2M	III	C118.1	Analyze

PART-II(2*10=20M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level	
2	A	Distinguish BFS and DFS graph traversals.	5 M	III	C118.1	Analyze
	B	List the applications of graph data structure.	5 M	III	C118.2	Remember
(OR)						
3	Explain the various representation of graph data structure with an example	10M	III	C118.2	understand	
4	Devise a recursive quick sort algorithm to arrange elements in ascending order.	10M	IV	C118.2	Create	
(OR)						
5	Design a recursive binary search algorithm to search for a key value in an array.	10M	V	C118.2	Create	



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PART-I(2*5=10M)

SET NO:II

Q.NO	Questions	Marks	Unit	CO	Cognitive Level	
1	A	Define Balance factor of AVL tree with an example	2M	III	C118.2	Remember
	B	Define graph with an example	2M	III	C118.2	Remember
	C	Define hash key with an example	2M	V	C118.1	Remember
	D	Distinguish quick sort and merge sort	2M	IV	C118.1	Analyze
	E	List the time complexity of linear search in best case and worst cases	2M	V	C118.3	Remember

PART-II(2*10=20M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level
2	List the properties of red-black tree with a suitable example	10 M	III	C118.2	Remember
(OR)					
3	Construct an AVL search tree for the given set of values 5,8,14,17,4,6,16,20,18,7	10M	III	C118.2	Apply
4	Devise a non-recursive quick sort algorithm to arrange elements in ascending order.	10M	IV	C118.2	create
(OR)					
5	Design a non-recursive binary search algorithm to search for a key value in an array.	10M	V	C118.2	create



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SET NO:III

PART-I(2*5=10M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level	
1	A	Define tree with an example	2M	III	C118.1	Remember
	B	Define weighted graph with an example	2M	III	C118.1	Understand
	C	Distinguish tree and graph	2M	III	C118.1	Analyze
	D	List the time complexity of selection sort in best and worst cases	2M	IV	C118.3	Remember
	E	List the time complexity of binary search in best and worst cases	2M	V	C118.3	Remember

PART-II(2*10=20M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level
2	Construct an BST search tree for the given set of values 5,8,14,17,4,6,16,20,18,7.	10 M	III	C118.2	Create
(OR)					
3	Illustrate the importance of AVL rotations with suitable examples	10M	III	C118.1	Apply
4	Write a C program to arrange the elements in descending order using selection sort	10M	IV	C118.2	Apply
(OR)					
5	Design a non-recursive linear search algorithm to search for a key value in an array.	10M	V	C118.2	Create



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PART-I(2*5=10M)

SET NO: IV

Q.NO	Questions	Marks	Unit	CO	Cognitive Level	
1	A	List the time complexity of merge sort in best and worst cases	2M	IV	C118.3	Understand
	B	List the time complexity of insertion sort in best and worst cases	2M	IV	C118.3	Understand
	C	Distinguish internal and external sorting methods	2M	IV	C118.1	Analyze
	D	Define Binary search tree with an example	2M	III	C118.1	Remember
	E	Distinguish left skewed and right skewed binary tree	2M	III	C118.1	Analyze

PART-II(2*10=20M)

Q.NO	Questions	Marks	Unit	CO	Cognitive Level
2	Generalize a non-recursive in order tree traversal algorithm.	10 M	III	C118.3	Remember
(OR)					
3	Devise an algorithm to merge the given two binary trees	10M	III	C118.2	Create
4	Write a C program to arrange the elements in descending order using Bubble sort.	10M	IV	C118.2	Apply
(OR)					
5	Explain linked list collision resolution technique with an example	10M	V	C118.1	Understand