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Reg. No. : | | | | | | | | | | |

Question Paper Code: 55821

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Fifth Semester

Electronics and Instrumentation Engineering

15UIT521–PROGRAMMING WITH DATA STRUCTURES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Which one of the below mentioned is linear data structure? CO1- R

   (a) Queue (b) Stack

   (c) Arrays (d)All the above

2. Linked list search complexity is CO2- R

   (a) O(1) (b) O(n) (c) O(log n) (d) O(log log n)

3. Heap is an example of CO3- R

   (a) Complete binary tree (b) Spanning tree (c) Sparse tree (d) Binary search tree

4. What must be the ideal size of array if the height of tree is ‘n’? CO4 -R

   (a) 2^n -1 (b) n-1 (c) n (d) 2n

5. Stack is used for CO5 -R

   (a) CPU Resource Allocation (b) Breadth First Traversal

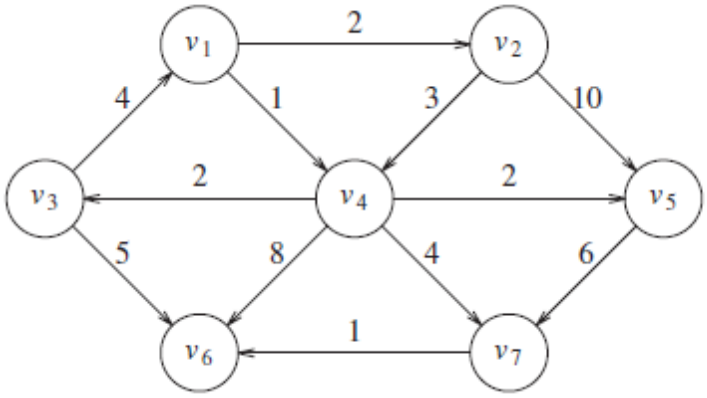
   (c) Recursion (d) None of these

PART - B (5 x 3 = 15 Marks)

6. List and define the two types of Polymorphism CO1 -R
7. Distinguish between Call by Value and Call by Reference. CO2- R
8. What are the operations of the stack? CO3- R
9. Discuss the three binary tree traversal algorithms with examples. CO4- R
10. What are the file open modes? CO5 -U

PART – C (5 x 16= 80 Marks)

11.	(a)	What is constructor? Explain the types of constructor with an example.	CO1 -U	(16)
		Or		
	(b)	Explain Control Structures in C++ with a program.	CO1- U	(16)
12.	(a)	Explain multiple catch statement with help of suitable C++ coding	CO2 -U	(16)
		Or		
	(b)	Explain in detail about Types of Inheritance.	CO2 -U	(16)
13.	(a)	Explain the Queue Model and list out its Applications.	CO3- U	(16)
		Or		
	(b)	Write a function to delete the minimum element from a binary heap.	CO3 -U	(16)
14.	(a)	Explain Dijkstra's algorithm using the following graph. Find the shortest path between V_1 to V_2 , V_3,V_4 ,V_5,V_6 ,V_7	CO4 -U	(16)



		Or		
	(b)	Explain in detail about AVL Trees with example.	CO4 -U	(16)
15.	(a)	Explain in detail about all pair shortest path problem with example.	CO5- U	(16)
		Or		
	(b)	Discuss the Quick sort algorithm with an example.	CO5- U	(16)