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Question Paper Code: 55821

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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. What are the operators available in C++? CO2- R
8. What are the operations of the stack? CO3- R
9. Write some of the basic rules for virtual functions. 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) What is inheritance? Explain the types of inheritance with an example. CO2 -U (16)

Or

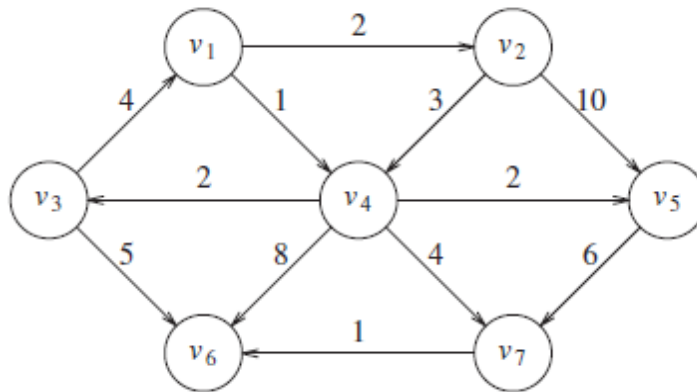
(b) Explain in detail about Types of Inheritance. CO2 -U (16)

13. (a) Write a program to implement various operation of Stack and Queue. CO3- U (16)

Or

(b) Explain the Queue Model and list out its Applications. 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) Write a program to implement merge sort and quick sort with example. CO5- U (16)

Or

(b) Discuss the Quick sort algorithm with an example. CO5- U (16)