Reg. No. :

Question Paper Code: 55821

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Electronics and Instrumentation Engineering

15UIT521–PROGRAMMING WITH DATA STRUCTURES

(Regulation 2015)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

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

    (a) Queue   (b) Stack

    (c) Arrays   (d) All the above

2. Which of the following is not a type of constructor?   CO1- R

    (a) Copy constructor   (b) Friend constructor

    (c) Default constructor   (d) Parameterized constructor

3. Linked list search complexity is   CO2- R

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

4. Which of the following concepts of OOPS means exposing only   CO2- R
    necessary information to client?

    (a) Encapsulation   (b) Abstraction   (c) Data hiding   (d) Data binding

5. Heap is an example of   CO3- R

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

6. Which data structure allows deleting data elements front and inserting
    at rear?

    (a)Stacks   (b) Queues   (c) Dequeues   (d) Linkede List

7. 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

8. All possible spanning trees of graph G   CO4 -R

   (a) have same number of edges and vertices

   (b) have same number of edges and but not vertices

   (c) have same number of vertices but not edges

   (d) depends upon algorithm being used

9. Stack is used for   CO5 -R

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

   (c) Recursion   (d) None of these

10. The complexity of Bubble sort algorithm is   CO5 -R

   (a) $O(n)$ (b) $O(\log n)$

   (c) $O(n^2)$ (d) $O(n \log n)$

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. What is constructor? Explain the types of constructor with an example.   CO1 -U   (8)

12. Explain multiple catch statement with help of suitable C++ coding   CO2 -U   (8)

13. Explain the Queue Model and list out its Applications.   CO3- U   (8)

14. Explain Dijkstra's algorithm using the following graph. Find the shortest CO4 -U   (8)
    path between V_1 to $V_2, V_3, V_4, V_5, V_6, V_7$
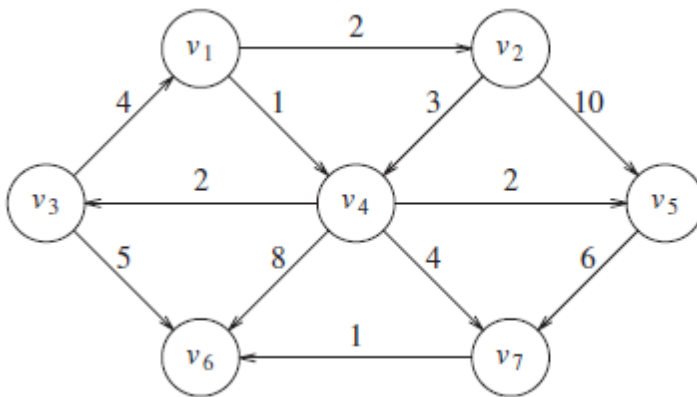
15. Explain in detail about all pair shortest path problem with example.   CO5- U   (8)

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