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

Question Paper Code: 53802

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

Third Semester

Information Technology

15UIT302 - DATA STRUCTURES AND ALGORITHMS

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as _____. CO1- R

   (a) Stack (b) Queue (c) Linked List (d) Tree

2. Two main measures for the efficiency of an algorithm are CO1- R

   (a) Processor & memory (b) Complexity & capacity

   (c) Data & space (d) Tree

3. The number of edges from the node to the deepest leaf is called _____ of the tree. CO2- R

   (a) Height (b) Length (c) Depth (d) Width

4. The depth of a complete binary tree is given by CO2- R

   (a) Dn = n log2n (b) Dn = n log2n+1 (c) Dn = log2n (d) Dn = log2n+1

5. Which of the following is not an advantage of priority queue? CO3- R

   (a) Easy to implement

   (b) Processes with different priority can be efficiently handled

   (c) Applications with differing requirements

   (d) Easy to delete elements in any case

6. The in order traversal of tree will yield a sorted listing of elements of tree in CO3- R

(a) Binary trees (b) Binary search trees (c) Heaps (d) None of these

7. Path Compression algorithm performs in which of the following operations? CO4- R

(a) Create Operation (b) Find Operation (c) Insert Operation (d) Delete Operation

8. When inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return. CO4- R

(a) FAEKCDBHG (b) FAEKCDHGB (c) EAFKHDCBG (d) FEAKDCHBG

9. A connected planar graph having 6 vertices, 7 edges contains _____ regions. CO5- R

(a) 3 (b) 8 (c) 6 (d) 9

10. In a graph if e=[u, v], Then u and v are called CO5- R

(a) endpoints of e (b) adjacent nodes (c) neighbors (d) all the above

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Write the modules to implement the following using Stack data structure: CO1- App (8)

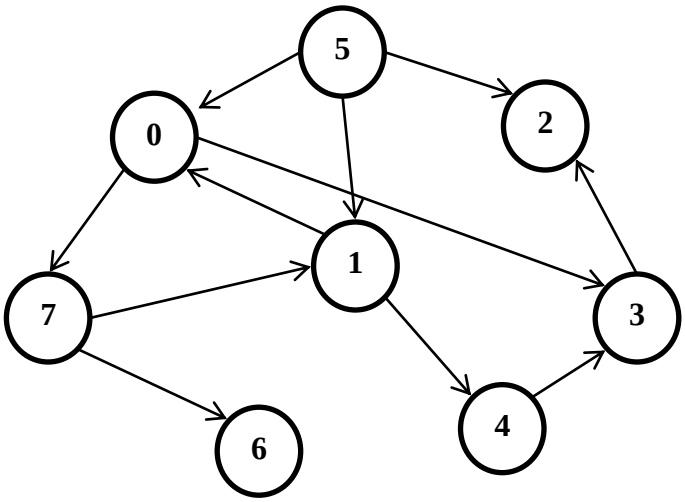
Check if the given string is palindrome

12. Create a binary search tree for the following numbers start from an empty binary search tree. 45,26,10,60,70,30,40 Delete keys 10,60 and 45 one after the other and show the trees at each stage. CO2- App (8)

13. Illustrate How delete operation performed on binary heap? CO3- App (8)

14. Explain dynamic equivalence problem in detail. CO4-U (8)

15. For the given graph below perform the Depth First Search and Breadth First Search. Compare the two search method. CO5- App (8)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