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**Question Paper Code: 52331**

M.E. DEGREE EXAMINATION, NOV 2016

First Semester

Computer Science and Engineering

15PCS101 - ANALYSIS OF ALGORITHMS AND DATA STRUCTURES

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- To measure an algorithm efficiency as a function parameter indicating the \_\_\_\_\_ of the algorithms input.  
(a) Size                      (b) Search                      (c) Space                      (d) Time
- Random number generator  
(a) Symbols                      (b) Letters                      (c) Zero                      (d) All the above
- Splaying is the basic operation in splay tree and it is combined with every  
(a) Insertion                      (b) Deletion                      (c) Search                      (d) All the above
- In \_\_\_\_\_ leaf nodes are the elements of the input array.  
(a) Segment tree                      (b) Leftist tree  
(c) Array element                      (d) Line segment
- A process or thread is assigned to each element of the  
(a) List                      (b) Array                      (c) Stack                      (d) Queue

PART - B (5 x 3 = 15 Marks)

- Name the basic efficiency classes in asymptotic notations.
- Construct an heap order property for (20, 5, 10, 4, 2) and delete min value.

8. List out the steps involved in deleting the node from a binary tree.
9. What is voronoi Diagram? Give an example.
10. Define mesh and butterfly.

PART - C (5 x 16 = 80 Marks)

11. (a) Explain fundamentals of algorithm problem solving with suitable diagram. (16)  
Or  
(b) Explain NP completeness and NP hard. (16)
  12. (a) Write a Program for deep insertion and deletion with example. (16)  
Or  
(b) Write a neat procedure binomial heap and give an example. (16)
  13. (a) Explain red black tree and list out the steps under the red black tree. (16)  
Or  
(b) Construct splay tree by inserting 2, 3, 6, 8, 9, 4 and delete last value. (16)
  14. (a) Explain segment trees of insertion operation with suitable diagram. (16)  
Or  
(b) Explain line segment algorithm with neat diagram. (16)
  15. (a) Explain list of ranking and give the steps required for list ranking algorithm. (16)  
Or  
(b) Explain data distribution on EREW. (16)
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