Faculty of Science

Code: R16/2304/BL

B.Sc (Computer Science) I-Year, CBCS-II Semester
Backlog Examinations, Dec/Jan 2019-20
PAPER: DATA STRUCTURES AND FILE PROCESSING

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any FIVE of the following questions.   (5x4=20 Marks)

1. What is a stack? Explain about applications of stack.
2. What is a recursion? Explain with example.
3. Distinguish between iteration and recursion.
4. Explain about priority queue.
5. What are various types of trees? Explain.
6. What are applications of binary trees? Explain.
7. Explain about extensible hashing.
8. What are heap applications? Explain.

Section-B

II. Answer the following questions.   (4x15=60 Marks)

9. (a) What is an algorithm? How to analyze algorithms? Explain.

   (b) Explain about reversing string with stack in detail.

(OR)

   (c) Describe representation of stacks using sequential organizations.

   (d) Explain garbage collection algorithms for equal sized blocks.

10. (a) What is the use of recursion in stack? Explain about variants of recursion.

    (b) Describe representation of sparse matrix using linked list.

(OR)

    (c) Explain about doubly linked lists and circular linked lists.

    (d) Discuss about circular queue and dequeue.

11. (a) Start with an empty binary search tree .

    i) Insert the keys 4, 12, 8, 16, 6, 18, 24, 2, 14, 3 in this order. Draw the tree following each insert.

    ii) From the tree of (i) delete the keys 6, 14, 16, and 4 in this order. Draw the search tree following each deletion.

(OR)

    (b) What is an AVL tree? What are the properties of an AVL tree. What are the applications of an AVL tree?

    (c) What are binary tree traversal techniques? Explain with examples.

12. (a) Explain about indexed sequential file organization.

    (b) Discuss about collision resolution strategies.

(OR)

    (c) Explain about comparison of hashing and skip lists.

    (d) Describe the implementation of heap with example.

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