C 41813 (Pages 3) Name.....

Reg. No.....

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/MAY 2013

(CCSS)

Computer Science

CS2 B03—DATA AND FILE STRUCTURES

(2012 Admissions)

Time : Three Hours Maximum : 30 Weightage

Section A

Answer **all** *questions.*
Each question carries ¼ weightage.

1. A sparse matrix have :
   (a) Many entries with zero values.
   (b) Many non-zero values.
   (c) Large dimension.
   (d) None of the above.
2. Which of the following in not a linear data structure ?
   (a) Array. (b) Stack.
   (c) Queue. (d) List.
3. The postfix equivalent of the prefix expression * + ab – cd is ?
   (a) ab + cd – *. (b) abcd + – *.
   (c) ab + cd * –. (d) ab + – cd *.
4. What kind of data structure would you use to store information about a set of customers address ?
   (a) Structure. (b) Array of structures.
   (c) Two dimensional array. (d) String.
5. The operation of processing each element in the list is known as :
   (a) Traversal. (b) Merging.
   (c) Searching. (d) Sorting.
6. State true *or* false: Graph is a linear data structure.
7. State true *or* false: Stack is FIFO structure.

8. Say true *or* false; In directed graph each edge is identified with an ordered pair of nodes.
9. Say true *or* false: Average case complexity of bubble sort is $0[n \log n]$.
10. Say true *or* false: An AVL tree is a binary search tree.
11. A ——— is a linear list in which additions and deletions take place at different ends.
12. A tree node with no children is called a ——— node.

(12 × ¼ = 3 weightage)

Section B

Answer **all** *questions.*
Each question carries 1 *weightage.*

13. Define data structure.
14. What is a 2D array ?
15. What is dequeue ?
16. What is binary tree ?
17. What is linear search ?
18. What is heap ?
19. What is a graph ?
20. What is spanning tree ?
21. Which data structure is used for implementing recursion ?

(9 × 1 = 9 weightage)

Section C

Answer any **five** *questions.*
Each question carries 2 *weightage.*

22. Explain the memory representation of sparse matrix.
23. Explain the push operation.
24. Distinguish between queue and circular queue.
25. Write a note on AVL tree.
26. Explain binary search algorithm.
27. Write an algorithm for inserting an item at end of the linear linked list.
28. Write a note on Adjacency matrix.

(5 × 2 = 10 weightage)

Section D

Answer any **two** *questions.*
Each question carries 4 *weightage.*

29. Write down the procedure for transforming infix expression to postfix.

30. Discuss quick sort algorithm with suitable example.

31. Explain the Breadth-First search algorithm.

(2 × 4 = 8 weightage)