

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI - 600 086
(For candidates admitted during the academic year 2015 – 16 and thereafter)

SUBJECT CODE: 15CS/MC/DA24

B. C. A. DEGREE EXAMINATION, APRIL 2018
SECOND SEMESTER

COURSE : MAJOR CORE
PAPER : DATA STRUCTURES AND ALGORITHMS
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION A

ANSWER ALL QUESTIONS:

(20 X 1 = 20)

Choose the best answer:

1. Binary search algorithm can not be applied to _____.
 a. sorted linked list b. sorted binary trees
 c. sorted linear array d. pointer array
2. Which of the following is not the required condition for binary search algorithm?
 a. The list must be sorted
 b. There should be direct access to the middle element in any sublist
 c. There must be mechanism to delete and/or insert elements in list
 d. none of above
3. The situation in a linked list START=NULL is _____.
 a. underflow b. overflow c. housefull d. saturated
4. Which of the following is two way list?
 a. grounded header list b. circular header list
 c. linked list with header and trailer nodes d. none of the mentioned
5. The term "push" and "pop" is related to the _____.
 a. array b. list c. stack d. all of the mentioned
6. Which of the following name does not relate to stacks?
 a. FIFO lists b. LIFO list c. Piles d. Push-down lists
7. Inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return
 a. FAEKCDBHG b. FAEKCDHGB c. EAFKHDCBG d. FEAKDCHBG
8. Which of the following is false about a binary search tree?
 a. The left child is always lesser than its parent
 b. The right child is always greater than its parent
 c. The left and right sub-trees should also be binary search trees
 d. None of the mentioned
9. Which of the following is true?
 a. A graph may contain no edges and many vertices
 b. A graph may contain many edges and no vertices
 c. A graph may contain no edges and no vertices
 d. None of the mentioned
10. A graph with all vertices having equal degree is known as a _____.
 a. Multi Graph b. Regular Graph c. Simple Graph d. Complete Graph

Fill in the blanks:

11. Two main measures for the efficiency of an algorithm are _____ & _____.
12. The complexity of Binary search algorithm is _____.
13. The complexity of Bubble sort algorithm is _____.
14. The complexity of merge sort algorithm is _____.
15. Finding the location of the element with a given value is: _____.
16. The order of the queue is _____.
17. _____ is an example of linear data structure.
18. The operation of processing each element in the list is known as _____.
19. _____ is non linear data structure.
20. Graph is called _____, if every edge is associated with a real number.

SECTION B**ANSWER ALL THE QUESTIONS:****(5 X 2 = 10)**

21. Define Algorithm.
22. Write short notes on sorting.
23. Define Stack.
24. What is leaf?
25. What is graph?

SECTION C**ANSWER ANY EIGHT OF THE FOLLOWING QUESTIONS:****(8 X 5 = 40)**

26. Explain about the Linear Search.
27. Explain the algorithm for Exchanging of two variables.
28. Explain about the Insertion Sort.
30. Explain the Fibonacci series using recursion.
31. Explain the different operations of stack.
32. Discuss about the Binay Tree and its terminology.
33. Describe in detail about the Heap Sort.
34. Explain about the Dijkstra's algorithm.
35. Explain about the different types of graph with neat diagram.

SECTION D**ANSWER ANY THREE OF THE FOLLOWING QUESTIONS:****(3 X 10 = 30)**

36. Discuss about the Binary Search.
37. Describe in detail about the Two way circular list.
38. Explain about the infix to postfix conversion with example.
39. Describe in detail about the Binary tree traversal.
40. Discuss about the Graph traversal.
