TB172680C   Reg. No:...............................

                                                  Name:.................................

BCA DEGREE (C.B.C.S.S) EXAMINATION, APRIL 2018
(2017 Admission Regular, 2016 Admission Improvement/Supplementary)
SEMESTER II-CORE COURSE
(CLOUD TECHNOLOGY AND INFORMATION SECURITY MANAGEMENT)
CA2C08TB - DATA STRUCTURES USING C

Time: Three Hours   **Maximum Marks: 80**

PART A

I.   Answer all questions. Each question carries 1 mark

1.   _____ Analysis guarantees the average performance of each operation in the worst case.
2.   The running time of merge sort in the average and worst case is _____
3.   Declaring an array means declaring the_____,_____ and_____
4.   Inserting a node at the end of the circular link list needs to modify_____pointers.
5.   A closed simple path with length 3 or more is known as_____
6.   A_____ is a connected graph that is not broken in to disconnected pieces by deleting any single vertex.

                                                                          (6x1=6)

PART B

II.   Answer any seven questions. Each question carries 2 marks

7.   Differentiate between iterative function and recursive function.
8.   Write a function to reverse a string using recursion.
9.   In what condition will you prefer B+Tree over B tree?
10. How many nodes will a complete binary tree with 27 nodes having last level? What will be height of the tree?
11. Why do we use multiple queues?
12. Are elements in a priority queue processed sequentially? Give example.
13. Define doubly linked list.
14. Specify the use of a header node in a header link list.
15. What is a graph? Explain its key terms.
16. Draw a complete undirected graph having five nodes.

                                                                          (7x2=14)

PART C

III. Answer any five questions. Each question carries 6 marks

17. Write a program to print all prime numbers from m to n.
18. Define an algorithm explain its features with the help of suitable examples
19. Quick sort shows quadratic behaviours in certain situations, justify.
20. Sort the elements 77,49,25,12,9,33,56,81,using heap sort.

21. Explain the term overflow and underflow. Write a program to implement a stack that stores character data.
22. Write a program to delete first element of doubly linked list. Add this node as the last node of the list.
23. Explain the steps involved in deleting a value from a binary heap with help of a suitable example.
24. Explain graph traversal algorithm in detail with example.

(5x6=30)

PART D

IV. Answer any two questions. Each question carries 15 marks

25. Discuss best case, worst case, average case and time complexity of an algorithm.
26. Write a program to sort an array of integers in descending order using quick sort.
27. Write a program to reverse the elements of a queue. Explain the program using an example.
28. Write a program that removes all nodes that have duplicate information using linked list.

(2x15=30)