

**Master'S Degree Examination –November 2017**

**I Semester**

**Class : I PG**  
**Major : Computer Applications**

**Time: 3 hours**  
**Max. Marks: 60**

**17MCAC03 Data and file Structures**

**Part A 10 x 1/2 = 5**

**Choose the correct answer**

1. \_\_\_\_\_ is a step-by-step recipe for solving an instance of problem.  
A. Algorithm B. Complexity C. Pseudo code D. Analysis
2. A queue is a data structure in which all insertions and deletions are made respectively at:  
A. rear and front B. front and front C. front and rear D. rear and rear
3. The node that has no children is referred as:  
A. Parent node B. Root node C. Leaf node D. Siblings
4. Which among the following is a dynamic data structure:  
A. Linked List B. Queue C. Stack D. array
5. What functions transforms an identifier  $X$  into a bucket address in the hash table?  
A. Hashing B. Searching C. Sorting D. Merging
6. Which design algorithm technique is used for quick sort.  
A. Divide and conqueror B. greedy C. backtrack D. dynamic programming
7. Which technique is used to increasing the size of a hash table's array, and restoring all of the items into the array using the hash function?  
A. rehashing B. Selection Sort C. Divide and conqueror D. Bubble sort
8. Using which query a range of values for a single key is specified?  
A. Range Query B. Functional Query C. Simple Query D. Boolean Query
9. A file is a/an \_\_\_\_\_ data type.  
A. abstract B) primitive C) public D) private
10. In the sequential access method, information in the file is processed:  
a) One disk after the other, record access doesn't matter b) one record after the other  
c) One text document after the other d) none of these

**Part B**

**5 x 4 = 20**

**Answer ALL questions**

**Each answer should not exceed 200 words or one page**

11. A) What are the steps to analyze a given program? [or]  
B) Write about Time complexity?
12. A) Define a stack. Describe the operations of a stack. [or]  
B) Write down the implementation of a Queue operation
13. A) Write about singly linked list. [or]  
B) Write about Doubly Circular Linked List.
14. A) Write down the procedure to insert a node in a binary tree. [or]  
B) Write down the procedure to search a node in a binary tree.
15. A) Write a note on best case and worst case complexities. [or]  
B) What is an algorithm? What are the characteristics of a good algorithm?

**Part C**

**5x 7 = 35**

**Answer ALL questions**

**Each answer should not exceed 600 words or three pages**

16. A) Write about various operations of data structures. [or]  
B) Convert the following infix expression into postfix expression  
i)  $A + B * C - D / E * H$   
ii)  $A + B * C$
17. A) Explain about string manipulation applications. [or]  
B) Discuss various binary tree traversals with suitable examples.
18. A) Discuss various representations of graphs. [or]  
B) List out the operations performed by a linked list.
19. A) Create a tree and find level, height and depth of the nodes. [or]  
B) Explain about binary tree traversal.
20. A) Explain Direct access file organization [or]  
B) Write in detail on external storage devices