

**Avinashilingam Institute for Home Science and Higher Education for Women  
[Deemed to be University] Coimbatore-641 043**

**Bachelor's Degree Examination – November 2018  
III Semester**

**Class : II UG  
Major : Information Technology**

**Time: 3 hours  
Max. Marks: 100**

**15BITC11 Data Structures and Algorithms**

**Part-A**

**10 x 1=10**

**Choose the correct answer**

- 1) An \_\_\_\_\_ is a finite set of instructions.  
a)Algorithm                      b)flowchart                      c)pesudocode                      d)program.
- 2) A matrix which has many zero entries are called \_\_\_\_\_.  
a)square    b)sparse c)row matrix d)column matrix.
- 3) \_\_\_\_\_ is an ordered list in which all insertions and deletions are made at one end called the top.  
a)Arrays                      b)Linked lists                      c)stack                      d)queue
- 4)\_\_\_\_\_ are ordered by white matrices are ordered by rows and columns.  
a)Arrays                      b)polynomials                      c)recursion                      d)linked lists.
- 5) A \_\_\_\_\_ is a process of collecting all unused nodes and returning them to available space .  
a)spooling                      b)garbage collection                      c)compaction                      d)marking
- 6) The children of the same parent are said to be \_\_\_\_\_ in the tree terminology.  
a)terminal                      b)ancestors                      c)siblings                      d)degree
- 7) A \_\_\_\_\_ is a simple path in which the first and last vertices are the same  
a)graph                      b)tree                      c)cycle                      d)components
- 8) The \_\_\_\_\_ is defined to be the number of edges for which V is the tail.  
a)connected component                      b)in-degree  
c)out-degree                      d)digraph.
- 9) The fields used to distinguish among the records are known as \_\_\_\_\_.  
a)searching                      b)keys                      c)files                      d)sorting
- 10) One of the better known methods for searching an ordered sequential file is called \_\_\_\_\_ search.  
a)sequential                      b)divide &conquer                      c)binary                      d)Fibonacci.

**Part B**

**5 X 6=30**

**Answer the following**

**Answer should not exceed 400 words or two pages**

11. a) Explain about the four distinct Areas of algorithm.  
(or)
11. b) Discuss about Ordered lists.
12. a) Explain about Multiple stacks and queues.  
(or)
12. b) Explain about Storage pool.
13. a) Write short Note on binary trees.  
(or)
13. b) Write short note on Garbage collection and compaction.
14. a) Write short note on graph terminology.  
(or)
14. b) Write short note on quick sort.
15. a) Explain in detail about Sequential search.  
(or)
15. b) Write short note on dynamic programming.

**Part C**

**5 x 12=60**

**Answer the following**

**Answer should not exceed 800 words or four pages**

16. a) What are the steps for creating programs with explain.  
(or)
16. b) Explain in detail array and its representations.
17. a) Write about the Stacks and queues, its concept and operations.  
(or)
17. b) Explain the concepts of (i) Single linked list. (ii) Doubly linked list
18. a) Briefly about the Binary tree traversal.  
(or)
18. b) Explain about the minimum spanning tree algorithm.
19. a) Explain the shortest path and transitive closure.  
(or)
19. b) Explain the concepts of (i) Insertion sort (ii) Heap sort.
20. a) Discuss about Greedy algorithms.  
(or)
20. b) Explain in detail about Knapsack problem and backtracking