SSR DEGREE COLLEGE (AUTONOMOUS) NIZAMABAD
SEM – II INTERNAL ASSESSMENT – II
DATA STRUCTURES (MPCS)
QUESTION BANK

I. CHOOSE THE CORRECT ANSWER

1) _____ Data structure is used to represent hierarchical relationships [ ]
   a) Array b) Tree c) Stack d) Queue

2) In a binary tree, the maximum number of children a node can have is [ ]
   a)1 b)2 c)3 d)unlimited

3) Traversal of a Binary Search Tree gives sorted order of elements [ ]
   a) Pre-order b) Post-order c) In-order d) Level-order

4) A complete binary tree is best represented using [ ]
   a) Linked list b) Stack c) Array d) Graph

5) In a Max Heap, the value of the root node is [ ]
   a) Minimum b) Average c) Maximum d) Random

6) Balance factor of an AVL tree node can be [ ]
   a) Only b) Only 1 C) -1,0, 1 d) any value

7) rotation is used to fix Left-Right imbalance in AVL trees [ ]
   a) Left rotation b) Right rotation c) Left-Right rotation d) Right-Left rotation

8) graph traversal uses a queue data structure [ ]
   a) DFS b) BFS c) Prim's d) Kruskal's

9) Algorithm is used to find Minimum Spanning Tree by edge sorting [ ]
   a) DFS b) BFS c) Prim's d) Kruskal's

10) Adjacency Matrix representation of a graph requires [ ]
   a) O(V) space b) O(E) space c) O(V) space d) O(VE) space

11)_____ algorithms is the fastest for sorting small arrays [ ]
   a)quick sort b) Shell sort c) Insertion sort d)heap sort

12) _____ advantage of selection sort over other sorting techniques [ ]

a) It is faster than any other sorting technique

b) It is scalable c) It works best for inputs which are already sorted

d) It requires no additional storage space

13) _____ method is used for sorting in merge sort [ ]

a) partitioning b) merging c) exchanging d) selection

14) _____ sorting algorithm does not use recursion . [ ]

a) bottom up merge sort b) merge sort

c) heap sort d) quick sort

15) Merge sort uses _____method to implementsorting [ ]

a) selection b) exchanging c) merging d) partitioning

16) _____ sorting algorithms is the fastest [ ]

a) Merge sort b) Shell sort c) Insertion sort d) Quick sort

17) Shell sort algorithm is an example of [ ]

a) Bottom-up sorting b) In-place sorting c) Internal sorting d) External

18) Quick sort uses _____ method to implement sorting [ ]

a) partitioning b) selection c) exchanging d) merging

19) _____ sorting algorithm is stable [ ]

a) Intro sort b) Time sort c) Heap sort d) Quick sort

20) sorting algorithm uses the method of insertion [ ]

a) selection sort b) quick sort c) bubble sort d) Insertion sort

II . FILL IN THE BLANKS

1. The fastest sorting algorithm for sorting small arrays is insertion sort

2. The main advantage of Selection Sort is that it no Additional storage

3. The method used for sorting in Merge Sort is merging

4. The sorting algorithm that does not use recursion is Heap sort

5. Merge Sort uses the method to implement sorting merging

6. The fastest sorting algorithm among the given options is Quick sort

7. Shell Sort algorithm is an example of In-place sorting.

8. Quick Sort uses the partitioning method to implement sorting.

9. The sorting algorithm which is stable is Time sort

10. The sorting algorithm that uses the method of insertion is Insertion sort

11. The topmost node of a tree is called the Root

12.Nodes with no children are called Leaf nodes

13.In-order traversal follows →Root, Left, right

14.A heap is always a complete binary tree

15.In a Binary Search Tree, left subtree values are smaller than root

16. AVL trees are self balancing binary search trees

17. BFS traversal uses a Queue data structure.

18. A spanning tree of a graph has no Cycles

19. DFS traversal uses a Stack data structure.

20. Prim's algorithm grows the MST from a Starting vertex

III. Descriptive Questions

1) What is hashing ?explain its hash functions?
2) What is collision ? Explain collision resolution methods?
3) Explain Binary Tree traversals with example ?
4) What is binary search tree. Explain its operations?
5) Explain insertion sort with example program?