Subject : Data Structure
IMPORTANT QUESTIONS

Q1. What is data structure? Explain
Q2. What is QUEUE? Write down a program to implement queue operations using array.
Q3. Explain any three types of sorting techniques using a list as example.
Q4. Explain priority queue and its applications.
Q5. Describe the formula for calculating the address of any element of two dimensional arrays using example.
(i)Row major order (ii) Column major order
Q6. What are the advantages of linked list over array? Write down algorithms to delete an element from the linked list from the start, end and middle of the list.
Q7. What do you understand by circular linked list and doubly linked list? Explain
Q8. Write a program that takes two linked lists pointed by LIST-1 and LIST-2 .Write a program that concatenates the two lists in such manner that the final list is pointed by the pointer called LIST-1)
Q9. Write an algorithm to insert an element at beginning in double linked list.
Q10. Write a recursive algorithm for In-order, Preorder and Post-order traversal of a binary search tree?
Q11. Explain the concept of AVL tree in details and also writes an application?
Q12. What is Graph? Give Different ways of representing a graph using proper example for the undirected, directed and weighted graphs.
Q13. What is minimal spanning tree? Write down different algorithms to find minimal spanning tree with the help of suitable examples?
Q14. Write a short note on File organization?
Q15. Write a program to count number of characters and lines in a file.
Q16. Write short notes:
(i) Applications of sets
(ii) Data structure for spell checker
(iii) Skips Lists

Q17. Write an algorithm of complexity O (n) to find the K^{th} smallest element in an array num[n], where n and k are given as an input.
Q18. Define a heap and heap sort with suitable example?
Q19. What is threaded binary tree? Discuss with the help of examples?
Q20. How file can be managed in C? Explain with example.
Q21. Following is the pre-order and in-order traversal of a binary tree:
Pre-order: A B C E D F
In-order: A B E A C F
Construct a binary tree and explain the procedure.
Q22. Implement queue operations using linked list along with algorithms?
Q23. Explain Binary Tree, Binary Search Tree, Balanced Binary Tree, Complete Tree, m-way Tree, B Tree with suitable example for various operations.
Q24. What do you mean by dynamic memory allocation?
Q25. What are the important factors in analyzing an algorithm? How do you analyze an algorithm? Write down worst case, best case and average case for different algorithms.