ANALYSIS AND DESIGN OF ALGORITHM(E2UC403B)

1.Explain analysis of algorithms is important?(2)

2.Describe the Algorithm Analysis of Binary Search.(2)

3. Explain Divide – and – Conquer approach?(2)

4. Explain space complexity (2)

5. Explain Asymptotic notations in algorithm analysis(5)

6. Explain time complexity(2)

7.Apply Merge Sort to sort the list a[1:10]=(31,28,17,65,35,42.,86,25,45,52). Draw the tree of recursive calls of merge sort, merge functions (5 MARKS)

8. Solve using Masters theorem i) T(n)=2T(n/4)+√n

ii) T(n)=7T(n/2)+ n2 (5)

9. Write and explain recursive binary search algorithm. (5)

10. Write Divide – And – Conquer recursive Merge sort algorithm and derive the time complexity of this algorithm.(8)

11.Write the algorithm for Strassen’s matrix multiplication and find the time complexity of the algorithm.(8)

12. Write the quick sort algorithm. Trace the same on data set 4,3,1,9,8,2,4,7. (5)

13. Define an algorithm?(2)

14. Define the Complexity of an Algorithm?(2)

15. What are the Asymptotic Notations?(2)

16. Explain the recursive algorithms? State the important rules which every recursive algorithm must follow.(5)

17. Apply merge sort algorithm on input 31, 22, 45, 67, 99, 21, 17, 13(5)

18. How can we compare between two algorithms written for the same problem? (5)

19. Devise an algorithm to insert a node in a Binary Search Tree.(5)

20. write an algorithm to implement Binary Search.Algorithm(8)

21. Define the Time complexity and space complexity of Algorithms. (5)

22. Explain Asymptotic Notations used in Algorithms. (8)

23. What is the recurrence for the worst case of Quick Sort and what is the time complexity in the Worst case? (2)

24.  Solve the recurrence T(n) = 7T(n/2) + n3  (5)

25. Demonstrate Binary Search method to search Key = 14, form the array A=<2,4,7,8,10,13,14,60>.(2)

26. Explain Strassen’s algorithm for matrix multiplication.(5)

27.   How time complexity of an algorithm differs from space complexity? (5)

28. What are the advantages of Merge sort over the quick sort algorithm? (2)

29. Explain the Big-Oh() computation (2)

30. What are the different ways of expressing the complexity of an algorithm?(2)

31. List the factors which affects the running time of the algorithm(2)

32 . Write the algorithm to perform Binary Search and compute its time complexity. Or Explain binary search algorithm with an example(8)

33. What are the applications of divide and conquer techniques?(2)

34. What is an algorithm?(2)

35. What are the types of algorithm efficiencies?(2)

36. What is the use of asymptotic notation?(2)

37.What is the substitution method?(2)

38.Explain the various Asymptotic Notations used in algorithm design? Or Discuss the properties of asymptotic notations. Or Explain the basic efficiency classes with notations(8)

39. What are the fundamental steps to solve an algorithm? Explain. Or Describe in detail about the steps in analyzing and coding an algorithm.(8)

40. Explain recursive relation and typeswith example(8)

41.Explain the Master theorem with example (8)

42. What are the applications of divide and conquer techniques? (2)

43. Write the algorithm to perform Binary Search and compute its time complexity. Or Explain binary search algorithm with an example(8)

44. Explain about Strassen‘s Matrix Multiplication with example.(8)

45. Write the algorithm to perform Quick sort algorithm and compute its time complexity. (8)

46 Write the algorithm to perform Merge sort algorithm and compute its time complexity (8)

47. Write the algorithm to perform linear search algorithm and compute its time complexity (8)