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| 1. | What is notion of an algorithm? Discuss Algorithm design and Analysis process with a neat diagram. |
| 2. | Explain the time efficiency and space efficiency of an algorithm. |
| 3. | Discuss different classes of efficiencies with an example |
| 4. | What are asymptotic notations. Discuss in brief with diagram and an example. |
| 5. | Prove the following  If t1(n)ϵO(g1(n)) and t2(n)ϵO(g2(n)), then t1(n)+t2(n) ϵ O(max{ g1(n), g2(n) }). |
| 6. | Write the general plan for recursive/non recursive analysis of an algorithm. |
| 7. | Discuss Tower Of Hanoi recursive algorithm . Solve the recurrence relation and find the order of growth of an algorithm. |
| 8. | Solve the following recurrence relations   1. x(n)=x(n-1)+5 for n>1, x(1)=0 2. x(n)=x(n/2)+n for n>1, x(1)=1 ( solve for n=2k) 3. x(n)=x(n-1)+n for n>0 , x(0)=0 |
| 9. | Apply selection sort algorithm to sort the list 9,5,7,3,6,1,3,2,4 |
| 10 | Discuss best case , worst case and average case efficiencies of Linear Search algorithm. |
| 11. | Write bubble sort algorithm. Discuss it efficiency . |

Some questions from previous year question papers on Unit 1.