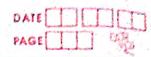
| the Section of Management | DATE TO THE PAGE T |
|---------------------------|--|
| - | Pesign and Analysis of Algorithms |
| | Assignment-I |
| Ques | Define different asymptotic notation with enamples. |
| Anj I | Asymptotic notations are languages that allow us to analyze an algorithm running time by identifying its behaviour as the linput size of the algorithm. |
| | Types3- |
| 1. | Big 0? - It is commonly used for world case, and gives us upper bound for the growth star of runtime of algorithm. Enample: - Big o notation for linear search is 0 (n) |
| 2 | Big Omegas - It is notation used for least can (complexity, it provides us with an symptotic lower bound. |
| | Em - Big omega of linear search is IZU) |
| 3 | Theta: - It is used for tight bound on the |
| | growth state of runtine of algo En- Theta of linear search is O(n) |
| 4. | Small Omega: - It is used to denote the upper bound (i.e. not graymptotic tight) |
| | $f(r) = O(g(r)) \qquad f(r) < O(g(r)) \qquad C > O$ Teacher's Signature |



| 5. | Small Omega - Todenote lower bound (that is that augmentation) |
|---------|--|
| | (mitubion C) |
| ^ | |
| Ques -) | Time complexity of - {091 (i=1 ton) { i=i*23 |
| | |
| =) | Ollogn) |
| | |
| Ques-3 | T(n)= {37(n-1) û n>0 otherwise 13 |
| | The state of the s |
| _ 1) | Tn = 37(n-1) |
| | 7(1) 2 3 1 3 1 |
| 1.7 | T(2) 2 3 3 T(1-) 2 3 |
| | 7(3)237(9)227 |
| | 7(4)=37(3)=27 |
| | 1 |
| *11.7 | |
| 1 4.50 | Tr > r > 3 |
| | $T(n) = (n-1)^3$ |
| | Time comprenity , 0(3") |
| | |
| 4 | |
| Quer-4 | T(n) = {27 (n-1) -14 070 otherwise 19. |
| | |
| AN | T6 1- 2 I (n=1)-1 |
| | T(n=1) = 27 [n=1]-1 |
| | T (n 2 2 1 - 1 - 1 |
| | 7. 22 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. |
| | (n-1) = -1(n-3)-1 |
| | 7(1)-81(1-3)-4-1-1 |
| | T (n-3) = 7 1(n-4) -) |
| | T(n)2 167 (n-4) - 8 -4-2-1 |
| | T(n): 2 -21 -21 -21 -21 |
| | PC - O(1) |
| | |
| | A Sandula |

| | | | PAGELOX | 10 1 | (6) |
|------------------------|--|-------|--|-------------------------------------|--|
| Ques | sintiet, Seli | , J | C | h | A Part of State of St |
| | uehile(J <= n) | 7 | 21.6 | 10 | |
| |),44 , | 2 | 2 | | |
| | (= (+)'. | 3 | 4 | | |
| | 2 "print ("#"); | y | 10 | | |
| | 2, 1 | 4 | . A decision of | | |
| | | , | | and the second second second second | |
| | T(=0(h) | | Control of the Contro | | |
| | The second of th | | | E STATE | 1 20 |
| | | 1 | 1 2 | | desid |
| - Owes | 6 | | | | |
| - | uoid function (int n)? | | | | |
| | uoid function (int n) { int i, count=0; | | A | - | |
| eaktes | forliz); (*i<=n; j++) | | | | |
| | (aunt ++; | 12 13 | | | |
| | 3 | | - | | |
| Am | TC = O(55) | 3370 | | | |
| . 2 | | | | | |
| . The | -7 void function (int n) { | - | | | |
| 1 14 | int i count=0' | | | <u> </u> | |
| | for (=n/2; i <=n; i++) | | | | |
| | Jony = 1; j <= n; j= j * | 2) | 1 | 4 | |
| | m(K=1', K<=n; K | , K*) | رر (ر | | |
| | V count++' | | | 4- | |
| No. 12 may be a second | 1 | - att | | | |
| | | | | | |
| Any- | $-0(n\log^2 n)$ | | | | - |
| | | | | | |
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| Ouer | |
| The Address of the Control of the Co | toutie 0 to 0) |
| nderkonari europurungangungungungang di berta Dang | for (y=1; y=1+1) } print (4) |
| control or a day graduation in a definition of the second | 2 punit |
| Tage | |
| | |
| - Ans | Total time complexity of peroblemis. |
| Arrandon francisco de la companya del la companya de la companya d | T(=O(n logn) |
| Name - Company of the | |
| | |
| Que- | to for the functions, or and an , what is the asymptotic |
| | Helation between there functions? |
| | Assume that K7=1, and a >1 are constants. |
| | find out the halve of cand no for which |
| | relation holds. |
| | |
| An | nk is o (c") as for example |
| | 1 WC 10x(hz), (c) |
| | Then 22 \le 22 so (n is upper limit of |
| | nK. |
| | |