

(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Subject :- ADSAA

SEM -V (I.T)

Time	
PAGE 1 Big Oh (O) upper bound) PAGE 2 16·n3 +45h2+12n <c.9(h)< th=""></c.9(h)<>
notations are represented in terms of O.	This funh this would be fun greater than
notations are represented	This tun
in terms of O!	this showd be
	grade 1
n is input values t is time	
t is time	Big O represent upper bound
	Big 0 represents upper bound that is the atmost value.
→ we have fun f(n)	11100 15 7 00
any problem which is	We need to find the largest
solved using fun f(n)	we need to find the largest term out of 16n3+45n2+12n
15	
> I want to write f(n)	n3, n2 > quadratic equation
in terms of Order of	n³, in² → quadratic equation n → linear equation
0(n)	
Nove	n3 is largest term
Nove $f(n) = 0.g(n)$ given	
given	
0.2 = = = (h)	value of $n^2 = 4$ $l n^3 = 8$
$f(n) \leq C \cdot g(n)$ constant	
constant	Jf n = 100
25	value of $n^2 = 10,000$
C>0	$4 \text{ n}^3 = 1,0,00,000$
$n \geqslant k$	h 1 n2
k ≥ 0	nor much change
	for smaller
so let's say we have	Values.
	but when we talk about upper sound we need least
f(n) = O(n). Prof. A. N. Aher	per bound or closed upper bound Department of Information Technology
i ioi. A. N. Andi	Department of information reciliology



Barahyanath Charletta Tracks

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PAGE 3	So, the closed upper bound is n3. 5 i.e.	Big Omega (-12) (lower Bound)
	13 no. 5 l.e.	
	16,3+45n2+ 12h5 (19(h))	
Tribona 2	▽	$f(n) = \int 2g(n)$
5		$f(n) = \Omega g(n)$ $f(n) > C \cdot g(n)$
	If I take value of c=2	
	If I take value of $c=2$ 332 \$ 16 $16n^3 + 45n^2 + 12n \neq 2.9(n^3)$	$f(n) = 2n^2 + n$
	16n3+45n2+12n+ @ 2.9(h3)	
	1 - 1 - 1	2n2+n > (.g(n)
10	50 we should take c = 342	V
		we can take no or even
	16 n3 + 45 n2+12n < 3.9(n3)	n as lower bound
	30 h >1	but while selecting the
-	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	lower bound always
15		keen in mind succi The
	From this we can say	greatest lower bound.
	that	to being the form Line of the
	$\frac{16n^3 + 45n^2 + 12n \le c \cdot 9(n^3)}{f(n) = O(n^3)}$	ore smaller than 5 are
	$f(h) = O(h^3)$	ore smaller than 5 are
20		4,3,2,1,0 but we
		Should select the greatest
		should select the greatest smaller no. i.e. 4.
	AND THE RESERVE OF THE PARTY OF	
	35.6	So we can write
. 25		2n2+h
		$f(n) \neq c \cdot g(n)$ $2n^2 + n \geq c \cdot n^2$
	trond	2h2+h > C. h2
		Now we should select
30		value for C, if C=2
	0.000	$\frac{2n^{2}+n>2\cdot n^{2}}{n>2n^{2}-2n^{2}}$
		h > 2n2-2n2
		50, h > 0.8. C=2.
	Prof. A. N. Aher	Department of Information Technology



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		PAGE 6
PAGE 5	3 Theta (0)	@ Little Oh O
T QUELLY		
	average case time	f(n) < 0 (.g(n)
	complexity	7(1)
	complexity. $(1.g(n) \leq f(n) \leq g(n)$	
5	(1) (n) (g(n)	a tunia a
	V-2 22	5 Little Omega
	$f(n) = 2n^2 + h$	
	Care	f(n) (x) c.g(n)
	$So,g(n)=n^2$	
10	-	
	Nove C1 = 2 & C2 = 3	
1	50	E SANTENIA FAXIL
		2
	2. n2 < 2n2+n < 2.43n	
11/1/2		
1	Let's take an example	
198	if I have a notebook	The sure state of the sure
1 - 1 - 37	& I want to find a	Talk the same of t
MARK	particular topic & there	SIZ asi rasi to asi
	is no indexing or	13 (500 D) = 1 (600) = 1
2	hashing in that case.	
Te dad to de	the sea situation is	
	110 3500 377000 377	
	DC 7 found the design on	
	Ist page j. e. Best case.	
	151 page). e. Dest case.	
2		
-	Ist page i.e. Worst cas	
	last page i.e. Worst cas	e.
	If I found it in the	
	middle or somewhere	
	nearby i.e. average case	
	Joseph Joseph	