Date. -Page No. Tutorial -4 1. $T(n) = 3T(n/2) + n^2$ a=3, b=2, fm)=n2 " a 8 b are to constant and Hulis a the function. : Masku's theorem is applicable. C= logba = log_3 = 1.58 => nc = n'18 which is n2>n1-68 : Care 3 is applied here T(n) = 8 (n2) I. T(n) = 4T(n/2) + n2 a=4 b=2 $f(n)=n^2$: all b are cond. and Hn) is a positive penetion. ". Moster's theorem is applicable c = log pa = log 24 = log 22 = 2 log 2 = 2 $\frac{1}{n^{c}} n^{c} = n^{2}$: Care 2 is applied here T(n1 2 8 (n2 logn)

Date. -Page No. * T(n)= T(n/2)+2n a=1 b=2 +(n) =2" "a & b are constant and Hml is a the pinch: Marting theorem is applicable c = logba = log, 1 7 nc= no=1 · + +1 n1 > nc - Care 3 is applied here T(n) = 0(2n) 4. T(n) = 2n T (n/2)+nn a=2ⁿ, b=2, Hn)=nⁿ i a is not constant, ils value depends 1. Marter's theorem is not applicable house 5. T(n) = 16T (n/4) +n a=16, b=4, tin)=n is a & b are constant and fin) is a the funch . C= logba = dog + 16 = log 4 42 = 2 log 4 4 = 2 of nc 2 n2 "! Hn) < n' . Case 1 is applied here Ft(n) = O(n+)

	Page No.
6.	T(n)= 2T(n/2)+ n log n
-	a=2, b=2, f(n)=nlogn
	: a & b are constant and fin is a
	tre junch.
	:- c = logba = logg2 = 1
	nc = n' = n
	'.' f(n) > nc
	: care 3 is applied
	- T(n) - O (n logn)
7	T(n) = 2T(n/2) + n/logn
*	a=2, b=2, Hn)=n/logn
	i a and b are constant & find is a tre
1 0 10	genetian
	e = logba
	2 log 2 2 1
	n^{c} , $n > n$
	· · · non- polynomial difference y w
	And Anc
	": Marter's theorem is applicable
	c= log, a = log, 2 = 0.50
	nc = 20.50
	1. Hn) × nc
	:, care 3/u applicable
	T(sh) = 10 (n0.50)

P(n) = 2T (m/4) + no.51 a=2, b=4, fm= nois " a 8 b are constant & f(n) is a tre junction C= log ba = log 4 2 = 0:50 n C = n 0.50 :: Hm) > nc T(n) = 0 (n0,50) T(n) = 0.5T (n/2) + /n a=0.5, b=2, fln)=/n Martin's theorem is not applicable 10. T(n) = 16T (m/4) + n6 a=16, b=4, Hn)=n! i a & b are constant & f(n) is a tre function. Mosterie theorem is applicable. c = logba = log 416 = log 442 = 2log 44 = 2 nc=n2 · ! (n) > nc t(n) = 0 (n/s)

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11:	T(n) = 4T (n/2) + logn
77	a=4, b=2, Hn)= logn
	: a & b are constant & f(n) is a +re
	penetion
	: Marter's theorem is applicable
	C = log b a = log 2 4 = 'log 9 22
	= 2 log 2 = 2
	$m^{c} = n^2$
	: 4n) < nc
	: care I is applied.
	C 2 log a > log 4 >
	T(n) = 0(n2)
12.	T(n) = Vn T (n/2) + logn
	a= \(\bar{n}\), b= 2, t(\bar{n}) = log n
	i. a is not constant
	: Mayter's theorem is not applicable
(3.6	T(n) = 3T(n/2)+n
	a=3, b=2, f(n) =n
	i, a & b are constant & An) is a
	tre gunction
	". Marter's theorem is applicable
	e > log p a > log 23 > 01.58 : n = n 1.58
	: nc = n1.58
	finient.

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(au is applied here (T(n) = 0 (n ^{1.58})
(T(n) = 0 (n'so))
THE RESIDENCE TO STATE OF THE PARTY OF THE P
T(n) = 3T(n/3) + Jn
a=3, b=3, t(n)=\(\sigma\) is q tre
: a & b are constant & Inlis a tre
function is applicable
c = logba = logg 3 = 1
nc = n'=n
1: +(n) < nc
:, care 1 is applicable
T(n)20(n)
a treatment was 1,00
T(n)= 4T(n/2)+n
11 2 2 1
i a & b are constant and flul is a tre
function : a plicable herl.
Junotion L' Monter's Alreonem is applicable here. C > logb a > log 4 = log 22 = 2 log 2 = 2 C > logb a > log 4 = log 22 = 2 log 2 = 2
1 109 6 4 112
Y1 - 3 VI-
i. Care i is applicable here i. Care i is applicable here
T(n) = 0(n2)

Date. — Page No. T(n) - 3T (n/4)+ n logn a=3, b=4, Hn)=nlogn s. a & b are constant & flm) is a +ve penetion : Marter's theorem is applicable here. C= logba=log43=0.79 :, f(n) > nc : Come 3 is applicable here

7 [T(n) = O(n logn)] T(n) = 3T(n/3) + n/2a=3, b=3, Hn]= n/2 function. Junction ". Master's theorem is applicable here e= log ba = log 3 = 1 nczn'=n ., t(n/ > nC : Care 2 is applied here F(n) n logn T/n/2 6T(n/3) + n2 logn a>6, b=3, tm)=n2logn . a & b are constant & HM is a +w function. Plastor's theorem is applicable here

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	c= logba = log3 6 > 1.63
	ne 2 n 1.63
	i. +(n) > n C
_	1 care 3 is applied here
_	$T(n) = O(n^2 \log n)$
	THE STATE OF THE S
9,	T(n)= 4T (n/21+ n/log n
4	A24 h22 t/n/2nblogn
	1. a & b are constant and fint is a tre
	Junetion
	1. Mayter's theorem is application here
	C= log b a = log 24 = log 22 = 2 log 22 = 2
	nc = n2
	:. f(n) < n c
	to case 1 is applied nere
	T(n) = 0 (n2)
91	$= (1) - (n/s) = n^2 \log n$
201	T(n)= 64T (n/8) 4 n² log n i, a & b are constant but t(n) is a
	- re function. Master's theorem is not applicable here-
	mel's que an si
2	T(n)= 7T(n/3)+n2
\	$a = 7, b = 3, t(n) = n^2$
\	a 4 b are constant 4 An) is the
\	penction.

	Page No
	. Marter's theorem is applied here.
	e= log 6 a = log 7 = 1.77 ne=n1.77
	nc > n ^{1,77}
	2. t(n) > ne
	: Care 3 is applied here
	T(n)= 0 (n2)
22.	T(n) = T(n/2) + n(2-cosn)
	: fin és not regular function
	: Moster's theorem does not applied
	nere,
	· ·
B 34	
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