Name: Gayrar Sengar - Inial	1
Name: Gaurar Sengar Tutorial-	T
Roll No: D3	Date
$1 \cdot T(m) = 3T\left(\frac{m}{2}\right) + m^2$	3. T(m) = T(m/2) +2m
501.	Sol^{4} : $Q=1$
$T(n) = aT(\frac{n}{b}) + f(n)$	b= 2
a 21, 671	$\frac{b=2}{f(n)=2}$
On companing	$c = \log \alpha = \log \alpha = 0$
$a=3, b=2, f(n)=n^2$	$m^{c} = m^{o} = 1$
Now,	(2007 5 20°C
Now, C = loga = log3 = 1.584	1 f(n) > n c
ne=n1.584 < m2	7(A)=0(2n)
.'. f(n)>nc	· · · · · · · · · · · · · · · · · · ·
$T(m) = \Theta(m^2)$	4. $T(m) = 2^{m}T(m/2) + m^{m}$
2. $T(m) = 4T(m/2) + m^2$	<u> </u>
- 1h.	$b = 2$ $f(n) = n^n$
	C = log a = log 2 ⁿ
$a=4, b=2, f(m)=n^2$	b 12
$e = \log 4 = 2$	(10 paig) = n
$n^{c} = m^{2} = f(n) = m^{2}$	y
	$i_1 + (n) = n^2$
$= \overline{T(n)} = \Theta(n^2 \log_2 n)$	$\frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \log n \right) \right)$
	$6 \cdot 7(n) = 27(n/2) + nlogn$
$5 \cdot T(n) = 16T(\frac{n}{4}) + n$	a = 2, b = 2
30/1: a=16, b=4	$f(n) = n \log n$
f(n)=n	C= log 2=1
C= log 16 = log (4)=2	~ n= n1 = n
- nc - n2	Stree, nlogn>n
$f(n) < n^{C}$	(n) > n
$(n T(n) = \theta(n^2)$	T(n) = O(nlogn)
Spiral	Teacher's Sign

7. T(n) = 2T(n) + m/10gn	8. $T(n) = 2T(\frac{n}{4}) + n0.51$ sollion = 2, b=4, f(n) = n0.51
Sol! a=2, b=2, f(n)=1/logn	
$C = \log_2 2 = 1$	$c = \log a = \log 2 = 0.5$
	nc = mo.s
$\frac{1}{2} \cdot \frac{n^2 - n^2 - n^2}{2}$	Sink, mois/ mois1
Since, m < n	$f(n) > n^{c}$
i, finding	· T/m) = A(m0.51)
$T(n) = \theta(n)$	$T(m) = \Theta(n0.51)$
2 T2 1- A-TT /M 1, 1/	10. T(n)-16T/M)+n1
$9.T(n) = 0.5T\left(\frac{n}{2}\right) + \frac{1}{n}$	10. $T(n) = 16T(\frac{m}{4}) + n1$ $Sol^n = a = 16, b = 4, f(n) = n1$
50/(a=0.5), $b=2$	$\frac{30}{1000} \frac{(a-16)}{(a-100)} = \frac{1}{1000} = \frac{1}{1000$
Since acc. to Master theorem	$\frac{1}{1000} = \frac{1000}{1000} =$
az1, but here a 1x0.5	Now, n°= n? - 10 - 100
so we cannot apply moster	As $m > m^2$
theorem.	: T(n) = 0 (n1)
11. 4T (m/2) + logn	12.T(n) = sqrt(n)T(n/2)+logn
	a=m, $b=2$
Sol^n : $a=4$, $b=2$, $f(n)=logn$	$\therefore C = \log_{10} \alpha = \log_{10} \sqrt{n} = \frac{1}{2} \log_{10} n$
	6 = 9 (2 = 1)
$c = \log_{b} a = \log_{2} 4 = 2$:. 1 log n < log(n)
", DC= N2	
ten) = logn	· +(n) > 11 = 1
since logn < n2	$T(n) = \Theta(f(n))$
in f(m) <mc< td=""><td>100 C/V. 44</td></mc<>	100 C/V. 44
	$= \Theta(\log(n))$
$\pi(m) = \Theta(m)$	U
= 0 (m²)	(u) = (u)

	Date
$13 \cdot T(n) = 3T(n/2) + n$	14. T(m) = 3T(m/3) + sqrt(m)
Sol! a=3, b=2, f(n)=n	30/1 a = 3/b = 3
	$c = \log_{b} a = \log_{3} = 1$
c = log a = log 3 = 1.5849 ne = n 1.5849	
= me= m (.2011.	$\therefore \mathcal{M}^c = \mathcal{M}^+ = \mathcal{M}$
: n <n1.5049< td=""><td>AR sqrt(n)<n< td=""></n<></td></n1.5049<>	AR sqrt(n) <n< td=""></n<>
=> f(n) <nc< td=""><td>$f(n) < n^c$</td></nc<>	$f(n) < n^c$
=) $f(n) < n^{c}$: $T(m) = \theta(n^{1.5849})$	$T(m) = \theta(m)$
100-00	4
13. T(n)=4T/n/2)+Cn	16. T(n)= 3T (n/y)+nlogn
13.7(n)=47(n/2)+(n $501^{-1} a=4, b=2$	Sol = 2 = 3, b=4, f(n)=nlogn
$C = \log a - \log 4 = 2$	$C = \log_{6} q = \log_{4} 3 = 0.792$
	nc= no.792
on on 2 / for any constant	
: f(n) <ne (for="" any="" constant<="" td=""><td>) ., no.792 < nlogn</td></ne>) ., no.792 < nlogn
(n) < n < - 10	:. T(n) = 0 (nlogn)
T(n)=0(n2)	mod +/ value of
S = 1 - Tal = 9 - 19 - 19 - 12	18. T(n) = 6T(n/2)+n2logn
17: T(n) = 3T (n/3)+n/2	a=6, b=3
$sol^{-1} a=3, b=3$	-C= log a= log 6 = 1.6309
C= log a = log 3 = 1	
f(n) = n/2	2 J1.6309
	Ax n1.6309 < m2 logn
:. Wc= W1 = 2	
Ab m/2< n	$\frac{1}{1}(m) = \Theta(m^2 \log m)$
= +(m) < nc	$\frac{1}{2}$
	(M) Hallott.
T(n) = $\theta(n)$	1-000

p . tojkotu;

 $20.T(m) = 64T(m/8) - m^2 \log m$ $501^n!$ $\alpha = 64 \cdot b = 8$ $c = \log 64 = \log 64 = \log (8)^2$ 19. $7(n) = 47(n/2) + m\log n$ $50l^{n}!! \quad \alpha = 4, b = 2, f(n) = \frac{n}{\log n}$ $c = \log_{10} a = \log_{10} 4 = 2$: nc= n2 :. n2logn > n2 in m < m2 $T(n) = \Theta(n^2 \log n)$:. T(n) = O(n2) 22. T(n)=T(n/2)+n(2-cosn $2i \cdot T(n) = 7T(n/3) + n^2$ $a = 7 \cdot b = 3 \cdot f(n) = n^2$ Soln: a = 1, b=2 c= log a = log 1 = 0 C=loga = log7 - 1.7712 " nc=no=1 nc= n1/7712 :, n(2-cosn)>nc ⇒ m1·7712 <m2 1(n)= 0 (n(2-cosm)) $T(n) = O(n^2)$