Tuto rial 8: product make the highly will be the
1. tp = mase \{ +p; \( 3 + \ d \)
= 90 +10
promone sand GK+h-D-tp.
(4+1000+D-100 )
100300 WS. 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
b. Him whather in bally larged from him builty
= 1000.(60+50+90+80)
James of the state
280000 hs.
Ch. Haroughput for pipelined execution
no. of instructions executed per unit time
= 1000/100300 task/ws.
1 de de de la serie o or tark /ns + 1 o lyer e o to
and of it a highlight the att behalf and which i draw a sign
12. tp = 1 man (150, 120, 160, 140) + 5
2 1 165 MS.
n= 1000 K=4 : total time (1000+4-1).165
= 1903.165
= 165495 ms
= 165.5 Ms
3. for four stage tp = max (800, 500, 400, 300) + delay
= 800+0 = 800 poscus exonds
so execution time for 1 instruction= 1 chrok cycle = 800 pico se
for two stage tp = max (600, 350) + delay
= 600 +0 = 600 picos econds
Execution time for 1 instruction = 600 pico seconds
throughput for 4 stage = 1 instruction /800 ns.
n 2 stage = linetruckian/600 ms.

So increase 1 1600 7 1800	1
de fix maderiller fan Apelina ion de Hellande	
so to of increase with respect to the previous one	
$= \left(\frac{2\sigma \delta}{6\sigma \delta} \times 8/60\right) \times 1000 \%$ $= \left(\frac{2\sigma \delta}{6\sigma \delta} \times 8/60\right) \times 1000 \%$	
800	
= ( 200 × 8/0 ) × 150 %	
600 X860	
= 33.33%	
4. cycle time in Designing &1 = max (3,2,4,2,3) +	dolay
4 +0/= 4 ns.	
Execution time for 100 instructions in Acisign DI-	
$= (\kappa + \gamma + 1) \cdot 4$	
5+100-1).4	
= 416 WS.	
Execution time for 100 instructions in Design D	2_
= (K+n-).2	eydetime
= <del>208mc</del>	= 2+0 3 delay
= (8+100-1)-2	+ (191.5
	14-16-1
so time saved = (416 - 214) = 202 ms.	
5. p) -> cycle time = mare (1,2,2,1) + delay = 2 23	· · · · · · · · · · · · · · · · · · ·
clock freg. = 12 = 0.5 GHZ.	
1 P2 - clock freg. = 1/max(1,15,15,15) = 1.	5 = 0.67 GH
P3-) = V max (0.5, 1, 1, 0.6, 1) = V1	
1 P4 + max (0.5,0.5,1,1,1.1) = 1	
so p3 has highest clock freg.	