1

•
$$m = 2, \sum p_i = 38, T_1 = 7, T_{\infty} = 20$$

$$C_{min}(2) = \frac{\sum p_i}{m} = \frac{38}{2} = \boxed{19},$$

$$C_{max}(2) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{7 - 20}{2} + 20 = -\frac{13}{2} + 20 = \boxed{13\frac{1}{2}},$$

$$m = 3, \sum p_i = 38, T_1 = 7, T_{\infty} = 20$$

$$C_{min}(3) = \frac{\sum p_i}{m} = \boxed{\frac{38}{3}},$$

$$C_{max}(3) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{7 - 20}{3} + 20 = -\frac{13}{3} + 20 = \boxed{15\frac{2}{3}}$$

Processors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
π(1)	Α	Α	Α	С	С	С	С	С	С	С	D	D	D	D	G	G	G	G	G	ī		K	K	K
π(2)	В	В	В	В							Ε	Ε	F	Н	Н	J	J	J	J	J	J			

Processors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
π(1)	Α	Α	Α					D	D	D	D	F					1	K	K	K
π(2)	В	В	В	В				Ε	Ε	Н	Н	J	J	J	J	J	J			
π(3)	С	C	C	C	C	C	C					G	G	G	G	G				

•
$$m = 4, \sum p_i = 56, T_1 = 5, T_{\infty} = 10$$

$$C_{min}(4) = \frac{\sum p_i}{m} = \frac{56}{4} = \boxed{14},$$

$$C_{max}(4) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{5 - 10}{4} + 10 = -\frac{5}{4} + 10 = \boxed{8\frac{3}{4}},$$

$$m = 6, \sum p_i = 56, T_1 = 5, T_{\infty} = 10$$

$$C_{min}(6) = \frac{\sum p_i}{m} = \frac{56}{6} = \boxed{9\frac{1}{3}},$$

$$C_{max}(6) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{5 - 10}{6} + 10 = -\frac{5}{6} + 10 = \boxed{9\frac{1}{6}}$$

Processors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
π(1)	M1	M7	N3	N4	N7	P4	P4	P4	P4	P4	T1	C11	Т3	C12	C21
π(2)	M2	N1	N5	P1	P1	P1	P1	P1	P5	P5	P5	P5	P5	T2	C22
π(3)	М3	M4	M6	P2	P2	P2	P2	P2	P6	P6	P6	P6	P6		
π(4)	M5	N2	N6	Р3	Р3	Р3	Р3	Р3	P7	P7	P7	P7	P7		

Uzochi Dimkpa Activity Task Graph & Scheduling ITCS 5145–001 Parallel Computing Prof. Erik Saule January 25, 2023

Processors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
π(1)	M1	N2	P2	P2	P2	P2	P2	T1	Т3	C12				
π(2)	M2	N3	N4	N7	P6	P6	P6	P6	P6	C22				
π(3)	М3	M4	M6	P5	P5	P5	P5	P5	T2					
π(4)	M5	N5	Р3	Р3	Р3	Р3	Р3	C11						
π(5)	M7	N6	P4	P4	P4	P4	P4							
π(6)	N1	P1	P1	P1	P1	P1	P7	P7	P7	P7	P7	P7	P7	C21

•
$$m = 2, \sum p_i = 107, T_1 = 40, T_{\infty} = 73$$

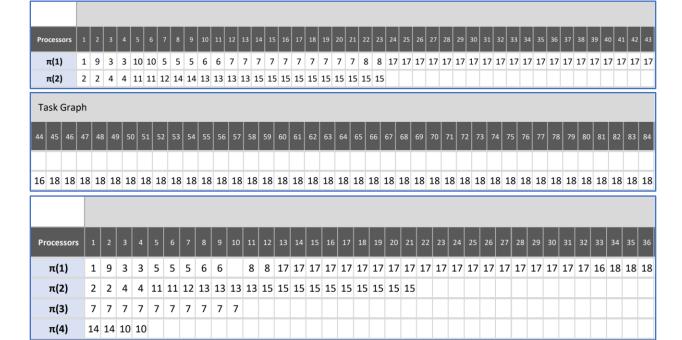
$$C_{min}(2) = \frac{\sum p_i}{m} = \frac{107}{2} = \boxed{53\frac{1}{2}},$$

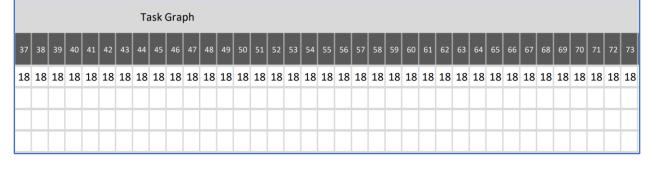
$$C_{max}(2) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{40 - 73}{2} + 73 = -\frac{33}{2} + 73 = \boxed{56\frac{1}{2}},$$

$$m = 4, \sum p_i = 107, T_1 = 40, T_{\infty} = 73$$

$$C_{min}(4) = \frac{\sum p_i}{m} = \frac{107}{4} = \boxed{26\frac{3}{4}},$$

$$C_{max}(4) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{40 - 73}{4} + 73 = -\frac{33}{4} + 73 = \boxed{64\frac{3}{4}}$$





4

•
$$m = 3, \sum p_i = 9, T_1 = 3, T_{\infty} = 3$$

$$C_{min}(3) = \frac{\sum p_i}{m} = \frac{9}{3} = \boxed{3},$$

$$C_{max}(3) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{3 - 3}{3} + 3 = \frac{0}{3} + 3 = \boxed{3},$$

$$m = 4, \sum p_i = 9, T_1 = 3, T_{\infty} = 3$$

$$C_{min}(4) = \frac{\sum p_i}{m} = \frac{9}{4} = \boxed{4\frac{1}{2}},$$

$$C_{max}(4) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{3 - 3}{4} + 3 = \frac{0}{4} + 3 = \boxed{3}$$

Processors	1	2	3
π(1)	G	G	G
π(2)	Α	C	Ε
π(3)	В	D	F

Processors	1	2	3
π(1)	G	G	G
π(2)	Α	D	
π(3)	В	Ε	
π(4)	C	F	

•
$$m = 3, \sum p_i = 33, T_1 = 6, T_{\infty} = 6$$

$$C_{min}(3) = \frac{\sum p_i}{m} = \frac{33}{3} = \boxed{11},$$

$$C_{max}(3) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{6 - 6}{3} + 6 = \frac{0}{3} + 6 = \boxed{6},$$

$$m = 4, \sum p_i = 9, T_1 = 6, T_{\infty} = 6$$

$$C_{min}(4) = \frac{\sum p_i}{m} = \frac{33}{4} = \boxed{8\frac{1}{4}}, 0$$

$$C_{max}(4) = \frac{T_1 - T_{\infty}}{m} + T_{\infty} = \frac{6 - 6}{4} + 6 = \frac{0}{4} + 6 = \boxed{6}$$

Processors	1	2	3	4	5	6	7	8	9	10	11	12
π(1)	D	D	D	D	D	G	G	G	G	G	G	
π(2)	В	В	В	В	E	E	E	E	Ε	Α	Α	Α
π(3)	С	С	С	С	F	F	F	F	F	F		

Processors	1	2	3	4	5	6	7	8	9
π(1)	G	G	G	G	G	G	Α	Α	Α
π(2)	F	F	F	F	F	F			
π(3)	E	E	E	E	E	С	С	С	С
π(4)	D	D	D	D	D	В	В	В	В