CS 350 HW 6

Problem 1.

a. $\sum_i^n \frac{c_i}{T_i} \le n(2^{1/n}-1)$ $\quad n(2^{1/n}-1) = 3(2^{1/3}-1)$

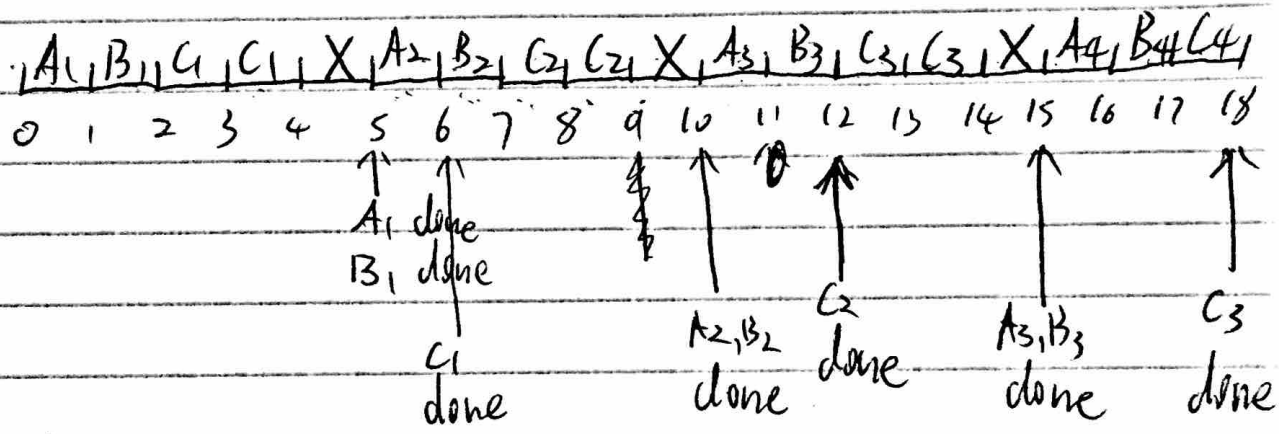
$= 0.779763$

$\frac{1}{T} + \frac{1}{5} + \frac{2}{6} \le 0.779763$

$T \ge 4.02$

minimum Integer of T is 5

b.



c. $\sum_i^n \frac{c_i}{T_i} \le 1$

$\frac{1}{T} + \frac{1}{5} + \frac{2}{6} \le 1$

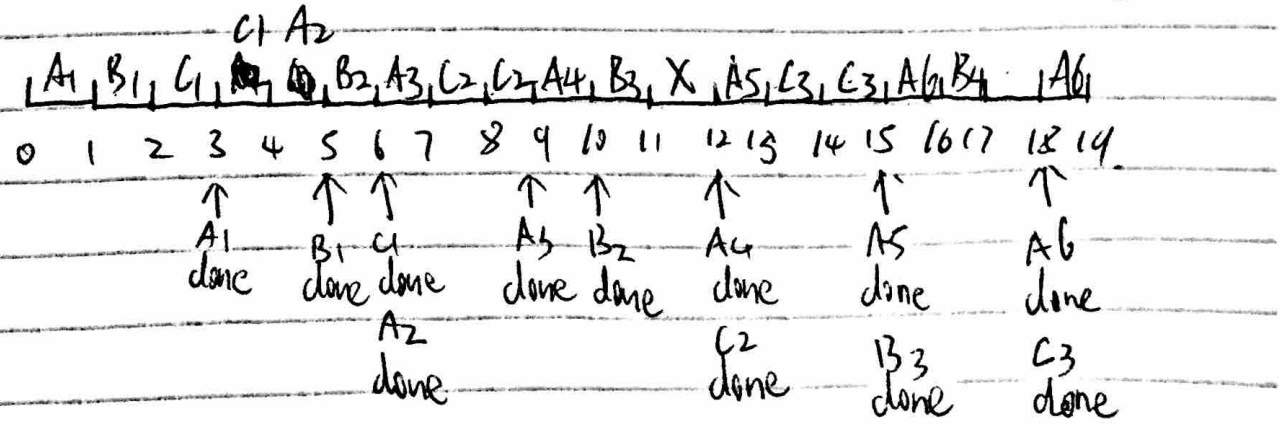
$\frac{1}{T} \le 1 - \frac{6+10}{30} = \frac{14}{30}$

$\frac{30}{14} \le T$

$2.14286 \le T$

minimum integer of T is 3

d.



Problem 2.

a.)

P(0)	P(1)
#1 run flag[0] = true (flag[1] = false)	#1 run flag[1] = true (now flag[0] is true) → (turn = 0) flag[0] = false (while (turn == 0) {})
Critical Section	"before P(1) assign its flag, P(0) goes faster and enter the Critical section again"
turn = 1 flag[0] = false	too late. flag[1] = true Critical section.
#2 run flag[0] = true (Now flag[1] is still false)	
Critical Section	

Explain: This happens when P(0) runs much faster than P(1), after P(0) finish critical section and change turn to 1 and assign flag[0] as false, P(1) stop waiting,

* ⇒ but right before P(1) assign flag[1] as true, P(0) goes faster, loop again assign flag[0] as true and enter critical section again. Sciene P(1) doesn't check anymore, it also enters C.S.

b. Process i

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Repeat
    flag[0] = true;
    while (flag[1]) {
        if (turn == 1) {
            flag[0] = false;
            while (turn == 1) {};
            flag[0] = true
        }
    }
    Critical Section
    turn = 1;
    flag[0] = false;
        Remainder Section
forever.
```

only change "if" to "while"