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Section: 12
Course: CSE340
Assignment: 02

Sub :

Day

Time :

Date : / /

Ans: to the que no: 01

Given

add : 20%

addi : 20%

not : 0%

beq : 25%

lw : 25%

sw : 10%

Memory Access: lw and sw

So, sw and lw will use Data Memory.

∴ Fraction of all cycles is the data memory used = lw + sw

= 25% + 10%

= 35%

A

Sub :

Day

Time : Date : / /

Ans: to the que no: 02

In the input of sign-extender circuit we will need addi, beq, lw, sw.

∴ fraction of all cycles is the input of the sign-extender circuit needed

= addi, + beq + lw + sw

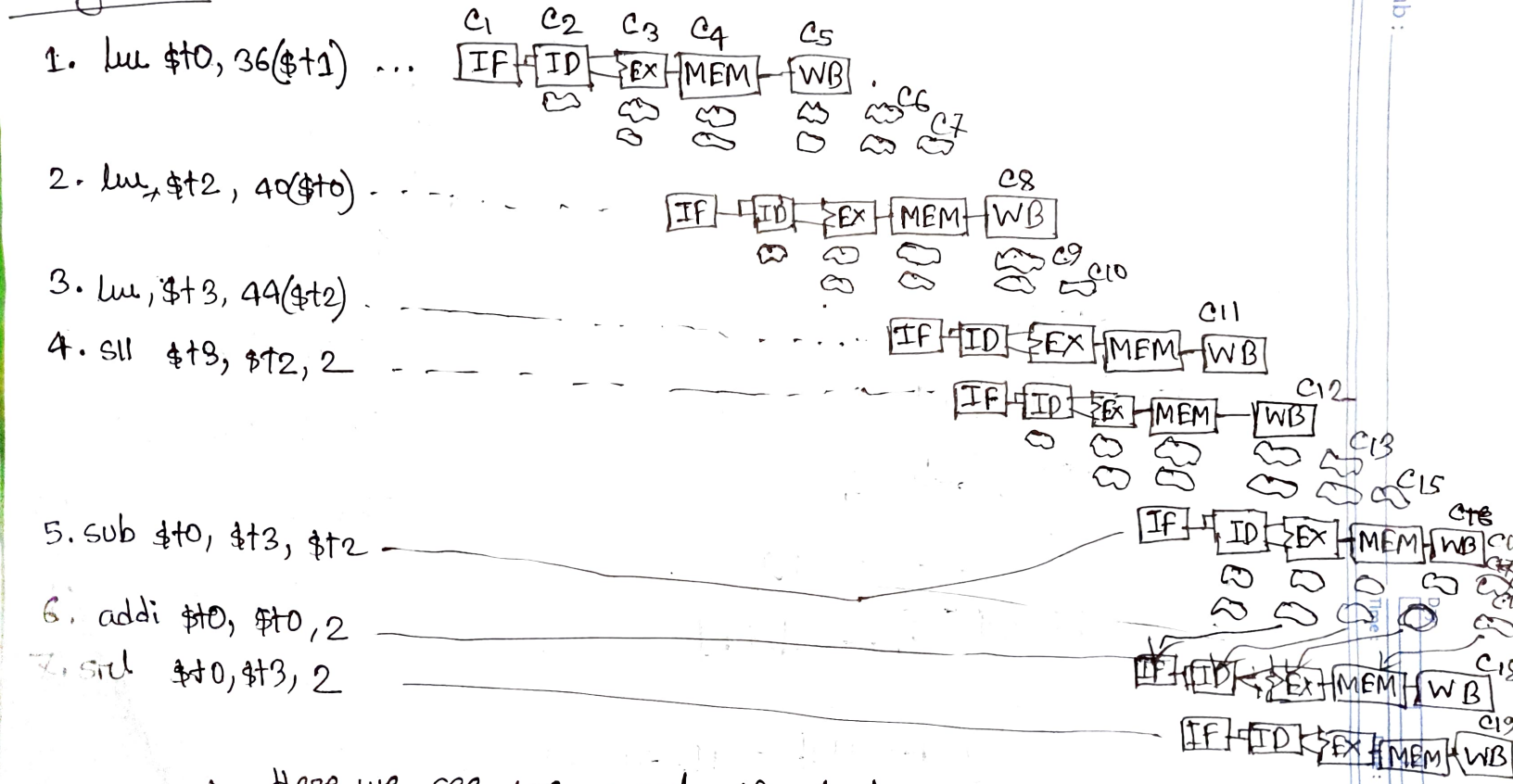
= 20% + 25% + lw + sw

= 20% + 25% + 25% + 10%

= 80%

Ans: to the que no: 03

Using Stall

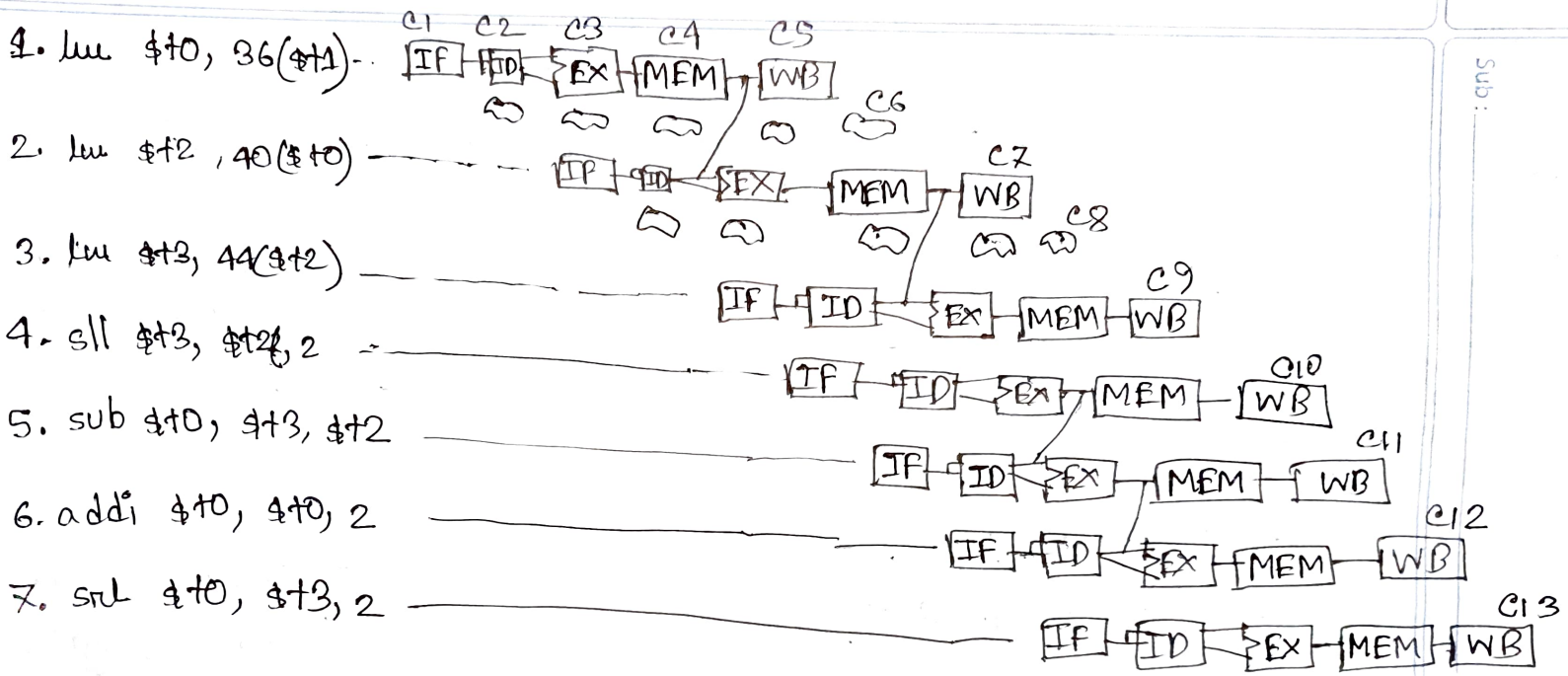


∴ Here, we see we need 19 clock cycles.

$$CPI = \frac{19}{7} = 2.714$$

Ans

Ans: to the que no: 04

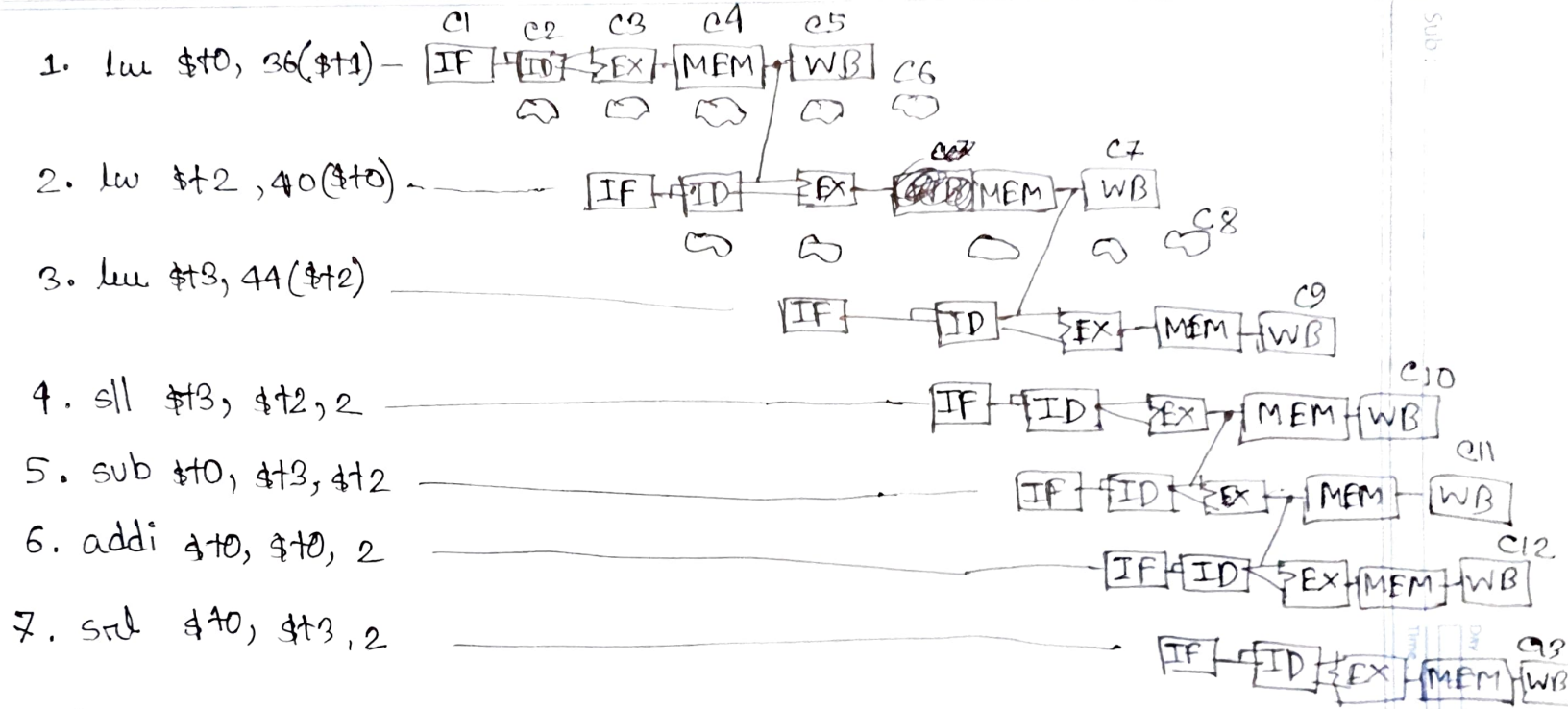


13 Clock cycles

$$\therefore CPI = \frac{13}{7}$$

$$= 1.857$$

Ans: to the que no: 5



Here, we can see that scheduling is impossible to apply as it will chang the sequence of the code. Therefore. only stall and forwarding is done. (clock cycle 13)

$$\therefore CPI = \frac{13}{x} = 1.85x$$