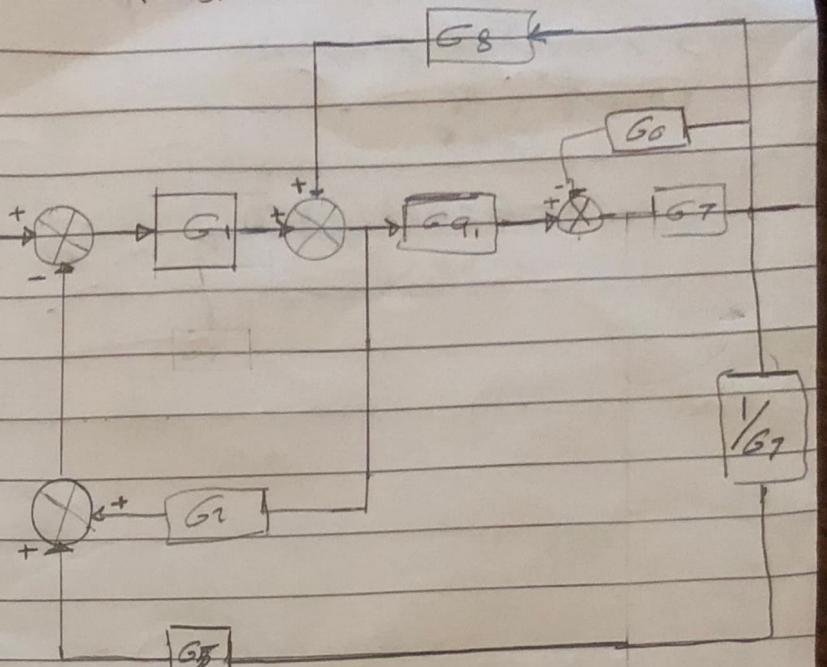


(Q1)

Assignment - 04

$G_9 = G_3, G_4 \Rightarrow \text{parallel}$

$$G_9 = G_3 + G_4$$



$G_6, G_7 \Rightarrow \text{feedback}$

$$G_{92} = \frac{G_7}{1 + G_6 G_7}$$

$G_{91}, G_{92} \Rightarrow \text{series}$

$$G_{93} = G_{91}, G_{92}$$

$G_{93}, G_8 \Rightarrow \text{feedback}$

$$G_{94} = \frac{G_{93}}{1 - G_{93} G_8}$$

$G_{94}, G_1 \Rightarrow \text{series}$

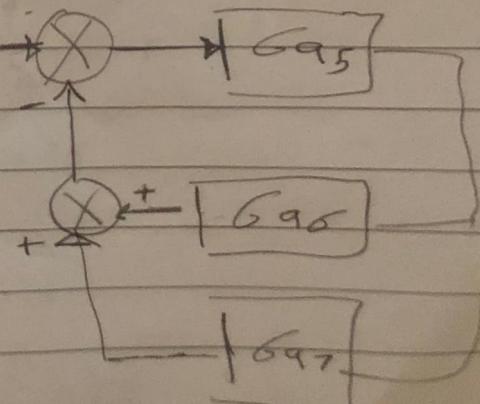
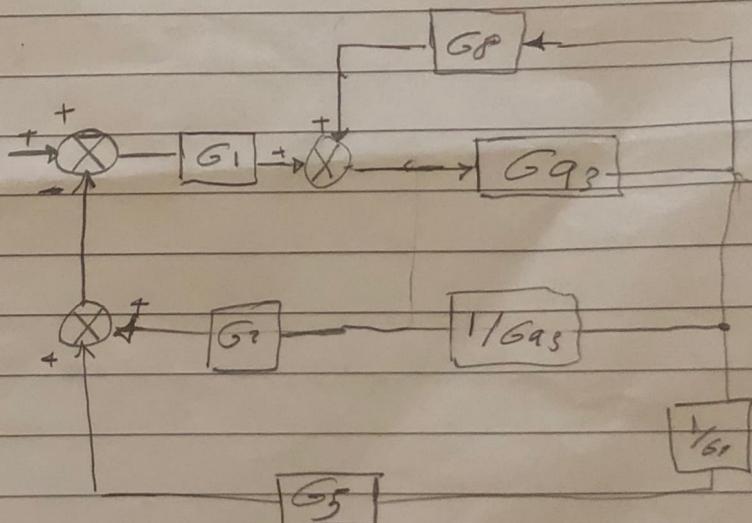
$$G_{95} = G_1, G_{94}$$

$$G_1, \frac{1}{G_9} \Rightarrow G_{96} = \frac{G_8}{G_{93}}$$

$$G_5, \frac{1}{G_7} \Rightarrow G_{97} = \frac{G_5}{G_7}$$

$G_{96}, G_{97} \Rightarrow \text{parallel}$

$$G_{98} = G_{97} * G_{96}$$



$G_{95}, G_{98} \rightarrow$ Feedback

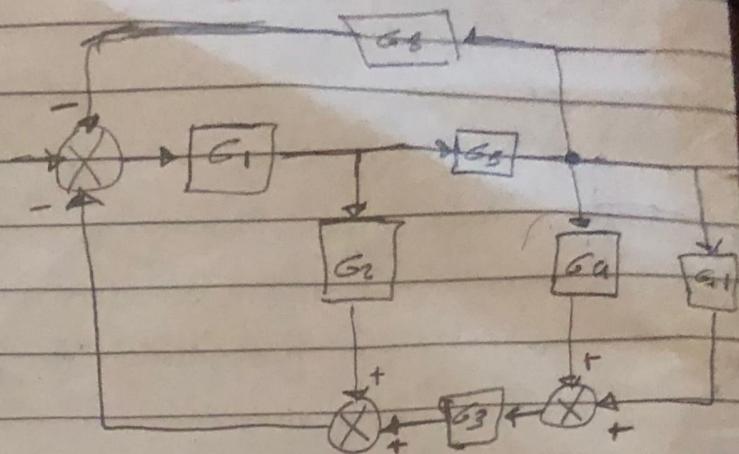
$$G_{99} = \frac{G_{95}}{1 + G_{95} G_{98} \cdot RCS} \quad G_{99}$$

```
graph LR; In(( )) --> Sum(( )); Sum --> G99[G99]; G99 --> RCS[RCS]; RCS --> NegIn(( )); G95[G95] --> PosIn(( )); PosIn --> Sum; NegIn --> Sum; Sum --> CCS[CCS];
```

(R_B)

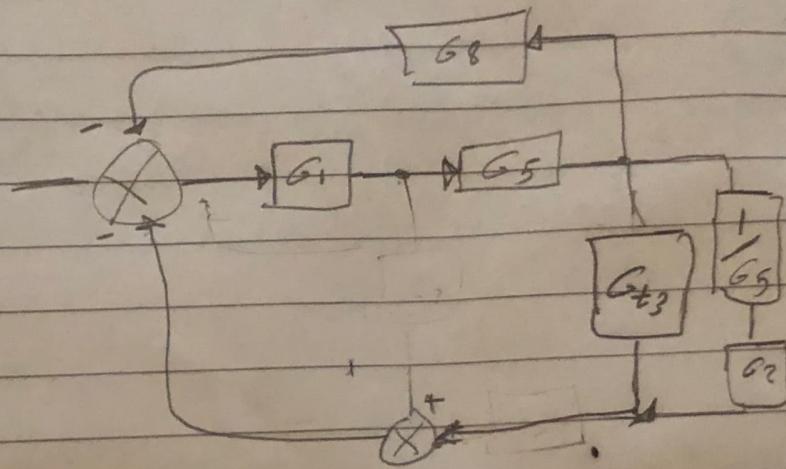
$G_6, G_7 \Rightarrow$ series

$$G_{t1} = G_6 G_7$$



$G_4, G_6 \Rightarrow$ parallel

$$G_{t2} = G_4 + G_6$$



$G_6, G_3 \Rightarrow$ series

$$G_{t3} = G_6 + G_3$$

$G_1, G_5 \Rightarrow$ series

$$G_{t4} = G_1 + G_5$$

$G_4 + G_8 \Rightarrow$ feed back

$$G_{t5} = \frac{G_1 G_5}{1 + G_1 G_5 G_8}$$