

Control Systems

What is
Block Diagram?



**Positive &
Negative
Feedback
Control system**

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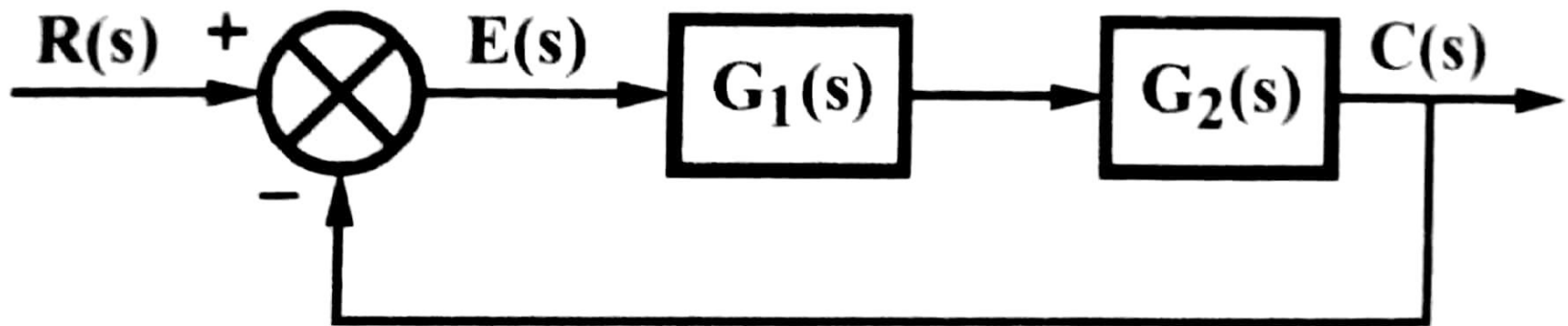
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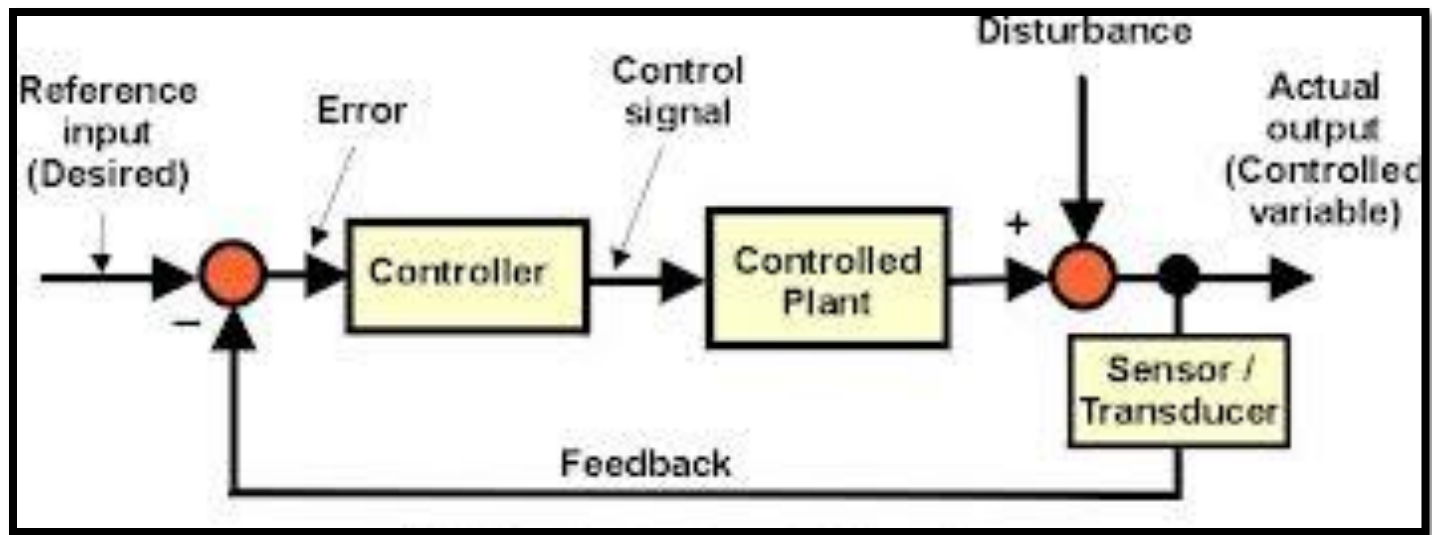
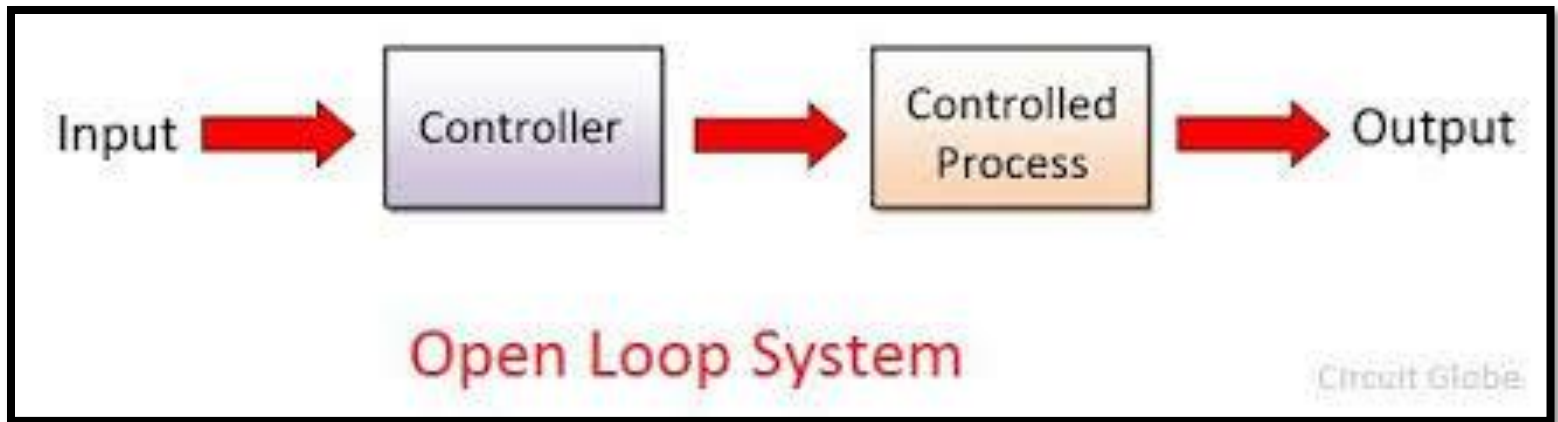
Block Diagram

- A block diagram is shorthand, pictorial representation of the cause-and-effect relationship between the input and output of a physical system.
- It provides a convenient and useful way for characterizing the functional relationships among the various components of a control system.

A block diagram is represented in the fig. in which $G_1(s)$ and $G_2(s)$ show the transfer function of individual elements of a control system.

The difference $E(s) = [R(s) - C(s)]$ denotes the actuating signal or error signal because the output signal $C(s)$ is feedback and compared with the input $R(s)$.

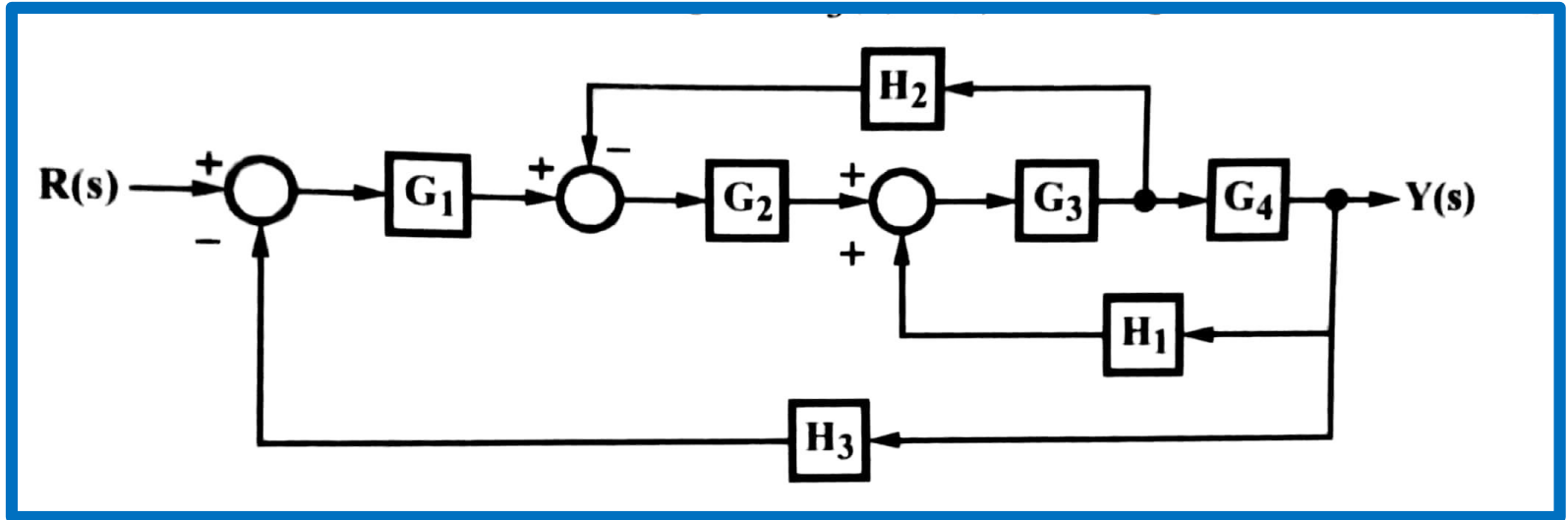




Closed loop System

Positive and Negative Feedback Control System

block diagram of a multiple-loop feedback control system is shown in fig.



It is interesting to note that the feedback signal $H_1(s)Y(s)$ is a positive feedback signal and the feedback signal $H_3(s)Y(s)$ is a negative feedback signal.

Positive Feedback: When the output signal is feedback so that it adds to the input signal is called positive feedback, and the loop comprise by this feedback is called positive feedback loop.

Negative Feedback: When the output signal is feedback so that it subtracts from the input signal is called negative feedback and loop comprise by this feedback is called negative feedback loop.

