

## 1.6 TRANSFER FUNCTION

The *transfer function* of a linear, time-invariant, differential equation system is defined as the ratio of the Laplace transform of the output (response function) to the Laplace transform of the input (driving function) under the assumption that all initial conditions are zero.

Open loop transfer function:  $G(s)$

Loop transfer function:  $G(s)H(s)$

Closed loop transfer function:

$$\frac{C(s)}{R(s)} = \frac{G(s)}{1 + G(s)H(s)}$$

