# Q no 2

Solution:-

The three major design criteria for control system are as follows;

1) Stability 2) Transient response
3) Steady- State error.

## ① Stability

A system is said to be stable, if its outputs is under control, otherwise, it is said to be unstable. A stable system produced a bounded output for a given bounded input. This is the response of first order control system for unit step input. This response has the values between 0 & 1.

## ② Transient Response:-

After applying the input to the control system, output takes certain time to reach steady state. Therefore, the response of the control system during the transient state is known as transient response. The transient response will be zero for large values of "t".

# Q no 2

## ③ Steady-State Error:-

steady-state error is defined as the difference between the desired value and the actual value of a system output in the limit as time goes to infinity.