B22228 - Assignment

1. **Construct a Simulink model for load frequency control for given data**

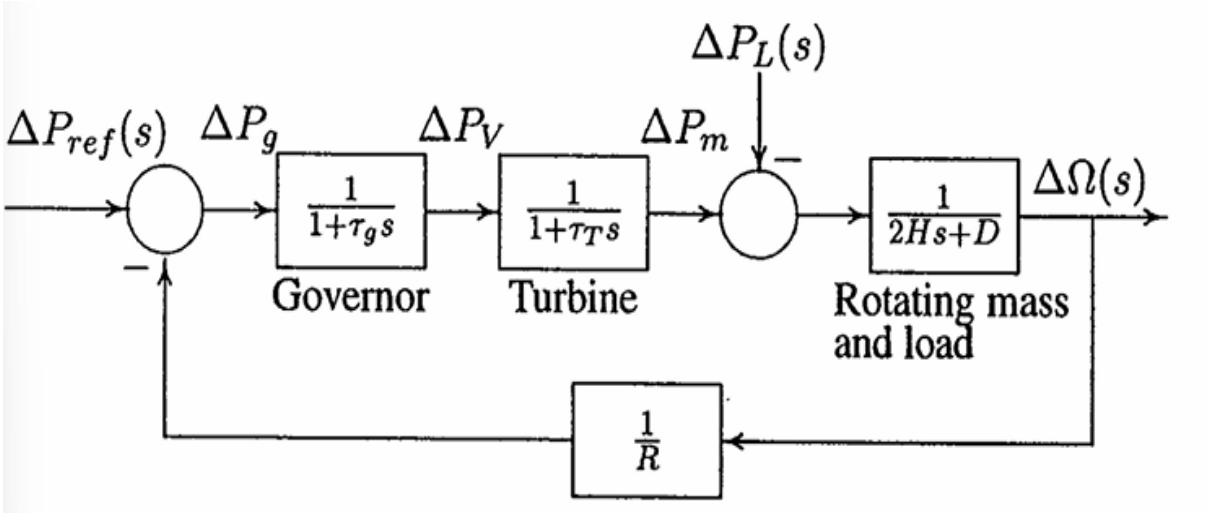
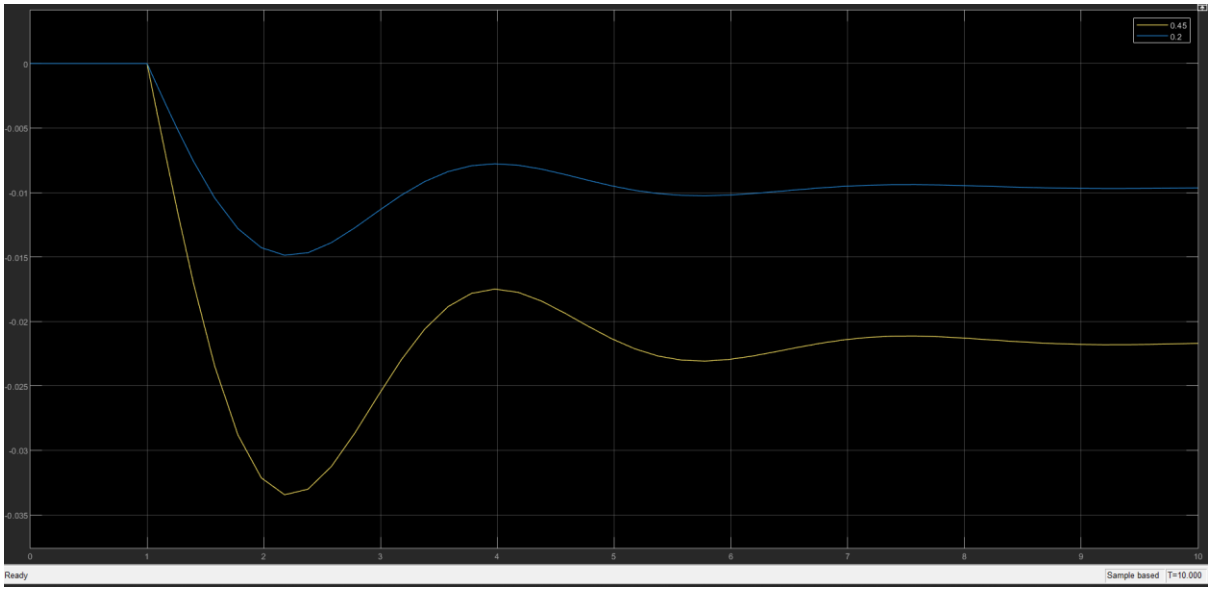


Fig.- Block diagram of load frequency control

τ_g	τ_T	H	D	R	ΔP_L
0.2	0.5	5	0.8	0.05	0.45 pu
0.2	0.5	5	0.8	0.05	0.2pu

Comment the effect of ΔP_L variation on Frequency nadir.



ANSWER:

- **For ΔP_L=0.2 (blue graph)**: The frequency deviation is less pronounced here , with a higher frequency nadir . This shows that a smaller load change leads to a less severe dip in frequency. **the frequency nadir is -1.485e-02.**
- **For ΔP_L=0.45 (yellow graph)**: The frequency deviation is more in this case, and the nadir (lowest frequency point) is lower. This indicates that a larger load change causes a deeper dip in frequency, resulting in a lower frequency nadir **i.e -3.344e-02**

Conclusion:

Increasing the load change (ΔP_L) lowers the frequency nadir i.e increasing the deeper dip , causing the system to experience a greater frequency deviation. Thus, a larger load disturbance results in a more pronounced drop in frequency.