Write a computer program (Visual C or MATLAB) that obtains the values of k1-k6 based on the information of the generator, first-order excitation, Heffron-Phillips single-machine model, and load, and then, according to the state equations of the system, extract the eigen values of the system including mechanical and electrical modes. And analyze the stability of low frequency at different work points (various loads) and if the system is unstable, proceed to design PSS and by placing PSS in the circuit, obtain the specific values before and after the presence of PSS.

$$given: P_0 , Q_0 , V_0 \angle \delta 0, X_d , X_q' , X_q , X', R_e , X_e$$

:And these parameters can be obtained

$$'Id\,0 , Iq0 , Vd\,0 , Vq0 , \delta 0 , Eq$$

$$wanted: k_1 ,...,k_6$$