Problem 8

(a) Find the solution of the initial value problem in Problem 6.

(b) Identify the transient and steady state parts of the solution.

(c) Plot the graph of the steady state solution.

(d) If the given external force is replaced by a force of $2 \cos \omega t$ of frequency $\omega$, find the value of $\omega$ for which the amplitude of the forced response is maximum.