b) In the coupled coil circuit of fig.6, prove that $\frac{|I_1|}{|I_2|} = \frac{L_2}{M}\left[1+\frac{R_2^{\,2}}{W^2 L_2^{\,2}}\right]^{1/2}$. **(8)**

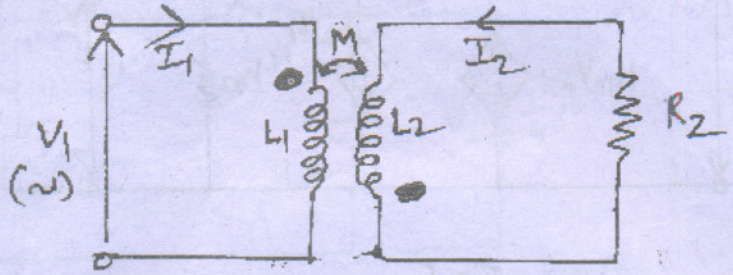

Fig. 6

OR

5. a) Two coupled coils have K =0.8, N_1 = 500 turns, N_2 = 1000 turns and the mutual flun being 0.9 wb, find the primary coil flun. If the primary current be 10 A, find the primary coil inductance. Also obtain the secondary inductance. **(8)**

b) Find V_2 in the circuit of fig.7 such that the current in the left hand loop (loop - 1) is zero. Assume $V_1 = 5\angle 0^\circ\ V$

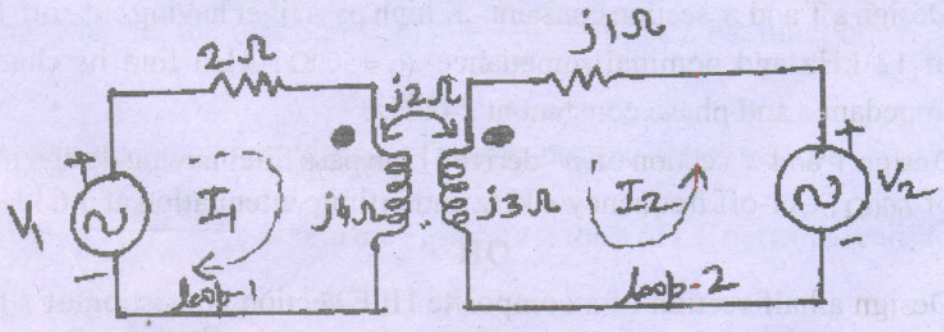

Fig-7