Problem 1

a) Derive the Z_2 quiver gauge theory obtained by the projection on the $U(2N)$ $\mathcal{N} = 4$ SYM where the Z_2 is generated by $-I$ in $SU(4)$ accompanied by conjugation with $\gamma = \mathrm{diag}(I_N, -I_N)$. What is the gauge group and field content? Is this a freely acting orbifold?

b) In this gauge theory, calculate the one-loop Coleman-Weinberg potential as a function of the eigenvalues of the adjoint scalars. What are the operators that pick up one-loop beta functions?