Homework 11

1. (10 points) From the decoupling of the neutrinos from Electromagnetic Field and transversity of W_3^μ and B^μ fields obtain the relation between W_3^μ and B^μ and A^μ and Z^μ fields

2. (10 points) Obtain the relation between B and W field coouplings, Weinberg angle and electron charge.

3. (10 points) Obtain relation between J_μ^3, J_μ^Y and J_μ^{EM}.

4. (10 points) Using above relation obtain the T_3 and Y eigenvalues of u and d quarks.

5. (10 points) Derive expression for Neutral Current through J_μ^3 and J_μ^{EM}

6. (10 points) Obtain the Electro - Weak Interaction Lagrangian expressed through the A and Z fields.