1. (20 pts) Complete the Control Memory (2^6 X 27 ROM) contents for the microprogrammed control unit shown in class, for the instruction set:
   - 000 = LDA
   - 001 = STA
   - 010 = ADD
   - 011 = BRA
   - 100 = BEQ
   - 101 = SUB
   - 110 = unassigned
   - 111 = STP (ignore this macro-instruction for this problem)
   and the fetch instruction

   Remember that some instructions can have two versions, the literal mode (bit 4 in IR is 1) or the absolute mode (bit 4 in IR is 0), while others will have just one (e.g., STA). Also assume that BRA and BEQ can only have literal modes, i.e., the branching address is present in the IR itself.

2. (5 pts; Extra Credits) Suggest how you might modify the micro-programmed control unit's architecture to accomplish the STP macro-instruction. You only need to make a suggestion in a few sentences; you do not need to show the control words for STP or any other instruction for the modified architecture.