DEPARTMENT OF ELECTRICAL ENGINEERING Dt:- 7/5/07

MAJOR TEST (2006-07)

EEL 896: POWER SYSTEM OPTIMIZATION

TIME: 2 Hrs **Max marks 40**

1.(a) For a lossless system consisting of many thermal generators, it is desired to have a system input output characteristics. Show how this can be obtained. (3)

1.(b) For a modified co-ordination equation method of ED, explain the effect of change of slack bus on the final solution and the penalty factors of the plants. (3)

2. Explain the IP OPF method along with its advantages. (6)

3. Explain the classical method of HTS and its limitations. Does it have anything in common with LR technique. (6)

4. Explain DP based UC method. Also explain the nature and complexity of the problem. (6)

5. Explain various options for voltage stability enhancement. Also explain the optimum load shedding procedure for the same. (6)

6. For a two bus system with line impedance of j 0.1 p.u, and voltage control at both ends, the receiving end real power is 1.5 p.u. The starting voltages at the two ends are 1.0 p.u. Perform one iteration of Gradient and Newton methods for reactive loss minimization. The two end voltages are the optimization variables. (10)