F 9874

M.TECH. DEGREE EXAMINATION, FEBRUARY 2012

Second Semester

Branch : Electrical and Electronics Engineering

Specialization : Power Electronics and Power Systems

PEPS 203 – POWER SYSTEM OPERATION AND CONTROL

(Regular/Supplementary)

Time : Three Hours   Maximum : 100 Marks

Answer any **five** *questions.*

1. (a) Explain hydro thermal system with pumped hydro units.

    (b) Explain hydro scheduling using dynamic programming.

                                                          (12 + 8 = 20 marks)

2. (a) Explain short term scheduling of hydro plant.

    (b) Explain incremental dynamic programming.

                                                          (12 + 8 = 20 marks)

3. (a) Obtain weighted least square estimation of the variables x_1 and x_2 by using the data for three dimensional Y vector.

$$\text{Assume } W = \begin{bmatrix} 0.1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0.1 \end{bmatrix}$$

    Assume 'H' matrix suitably.

    (b) Explain how to obtain the solution of weighted least square estimation problem.

                                                          (12 + 8 = 20 marks)

4. (a) Explain static state estimation of power system.

    (b) Explain static state estimation using Line Only algorithm.

                                                          (12 + 8 = 20 marks)

5. Explain distributed data acquisition system with block diagram.

                                                          (20 marks)

6. Explain Regional and State level SCADA system.

                                                          (20 marks)

7. Explain the various applications of expert system for power system operation.

                                                          (20 marks)

                                                          [5 × 20 = 100 marks]