Code: **EEPC1T3**

PVP 12

I M.Tech-I Semester-Regular Examinations-March 2014

POWER SYSTEM OPERATION AND CONTROL
(POWER SYSTEM CONTROL AND AUTOMATION)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) What is unit commitment problem . Explain different constraints involved in unit commitment Problem. 7 M

b) Briefly explain the priority list scheme method for solving unit commitment problem. 7 M

2 a) Explain dynamic programming forward sweep approach of unit commitment problem with flow chart. Also give advantages of dynamic programming approach method. 7 M

b) Explain the advantages of dynamic programming method compared to priority list scheme method. Also explain the way to find the most economical combination of the units to meet a particular load demand by dynamic programming method. 7 M

3 a) Explain speed governing system of single area load frequency control with neat sketch. 7 M

b) Draw the block diagram of isolated single area load frequency control system and also explain the why frequency is kept constant in power system operation. 7 M

4 a) Explain clearly what is the need of introducing Proportional and Integral control action for a single area load frequency control system. Draw the block diagram for Proportional plus Integral load frequency control. 7 M

b) Two turbo Alternators rated for 110 MW and 210 MW have governor drop characteristics of 5 percent from no load to full load. They are connected in parallel to share a load of 250MW. Determine the load shared by each machine assuming free governor action. 7 M

5 a) Draw the block diagram of load frequency control in two- area control system and explain. 7 M

b) Derive an expression for steady state change of frequency and tie line power transfer of a two area power system. 7 M

6 Explain the optimal load frequency control of two area load frequency control by considering the state variables for optimal parameter adjustment. 14 M

7 a) Explain fuel scheduling by linear programming with flow diagram. 5 M

b) Explain the need for studying generation with limited energy. 4 M

c) Briefly explain the composite generation production cost with equations. 5 M

8 a) What is the need for power pools and also explain the advantages of power pools. 7 M

b) Explain interchange evaluation and how interchange evaluation is applied with unit commitment problem. 7 M