Exam.Code:1017
Sub. Code: 35252

2124

M.E. Electrical Engineering (Power System)
First Semester
EE(PS)-8102: Power System Operation and Control

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt any five questions.

x-x-x

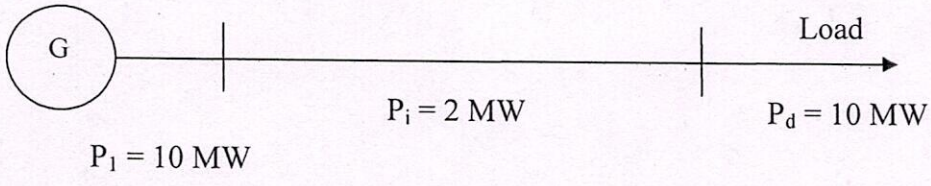
1. Draw block diagram for generation control of two areas interconnected through a tie-line. Discuss role of various blocks in it. Derive an expression for change in tie-line power flow using suitable symbols for different variables and system parameters. (10)

2. List various methods for obtaining solution of co-ordination equations of a hydro-thermal power system and discuss any one method in detail. (10)

3. Discuss in detail load forecasting? What are its different types? Explain its significance in power system operation and control. (10)

4. Discuss penalty factor method to solve optimal load dispatch problem. Determine incremental cost of received power and penalty factor of the plant as shown, if incremental cost of production is

$\frac{dF_1}{dP_1} = 0.1P_1 + 3.0 \quad Rs/MWh$



(10)

5. What is meant by unit commitment problem? How unit commitment problem is formulated and solved using forward dynamic programming method. (10)

6. Discuss the terms base point and participation factor in economic dispatch of thermal units. Give an example to show involvement of these in ELD problems. (10)

P.T.O.

7. Discuss the need of reserves in PSOC. Explain different types of it. (10)

8. Two system areas are interconnected by a tie-line with the following characteristics:

   Area1: R = 0.05 pu, D = 0.6, Base MVA = 1000 MVA

   Area2: R = 0.0625 pu, D = 0.9, Base MVA = 1000 MVA

   System frequency is 60 Hz. Load change of 187.5 MW takes place in Area1. Find new steady state frequency, change in tie-line power and change in generation of each area.

   (10)

x-x-x