

Code No: RT41023

R13**Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018

POWER SYSTEM OPERATION AND CONTROL

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any THREE questions from Part-B*

PART-A (22 Marks)

1. a) Draw heat curve and explain its significance. [3]
- b) Define methods for solving hydro thermal scheduling. [3]
- c) Write the constraints in the formulation of unit commitment problem. [4]
- d) Explain the principle of tie line bias control. [4]
- e) Discuss the merits of proportional plus integral load frequency control. [4]
- f) Write the advantages and disadvantages of compensation in transmission system. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain the following terms with reference to power plants heat input – power output curve, heat rate input, incremental input, generation cost and production cost. [8]
- b) Draw the flow chart for obtaining optimal scheduling of generating units by neglecting the transmission losses. [8]
3. a) Explain problem formation and solution procedure of optimal scheduling for hydro thermal plants. [8]
- b) Explain about hydro – thermal co-ordination with necessary equations. [8]
4. a) Explain the need of an Optimal unit commitment problem. [8]
- b) With the help of a flow chart, explain the dynamic programming method in unit commitment. [8]
5. a) How is speed governor mechanism modeled and Explain its operations with the speed load characteristics. [8]
- b) Draw the block diagram of uncontrolled two area load frequency control system and explain the salient features under static condition [8]
6. a) Explain proportional plus integral load frequency control of a single area system with a neat block diagram. [8]
- b) Discuss the importance of combined load frequency control and economic dispatch control with a neat block diagram. [8]
7. a) What do mean by compensation of a line? Discuss briefly different methods of compensation. [8]
- b) Define fundamentals of FACTS devices and Write the need for FACTS controllers. [8]