

**Government College Of Engineering, Aurangabad**

(An Autonomous Institute Of Government of Maharashtra)

**ME (EPS) FT & PT Rev Examination**

End Semester Examination

**EE542: Power System Planning, Operation & Control**

Time: Three Hours

13.0 NOV 2016

Max. Marks: 60

"Verify the course code and check whether you have got the correct question paper"

N.B:-

1. All questions are compulsory
2. Each question carries equal marks.
3. Assume suitable data if necessary & state it clearly
4. Use of non programmable calculator is allowed

Q.1. Solve any Two

- A. What is penalty factor in economic scheduling? Explain its significance.
- B. Why load prediction is necessary in power system operation? Explain
- C. With block diagram explain the load frequency control for a single area system.

Q.2. Solve any Two

- A. Explain hydro thermal economic load scheduling. Derive the necessary equations.
- B. Explain the importance and philosophy of short term hydro-thermal coordination.
- C. Consider a steam station with two units the input-output characteristics being specified by

$$F_1 = 80 + 8P_1 + 0.024P_1^2$$

$$F_2 = 120 + 6P_2 + 0.04P_2^2$$

In scheduling a load of 100MW by equal incremental cost method, the incremental cost of unit 1 is specified wrongly by 10% more than the true value while that of unit 2 is specified by 6% less than the true value

- Find (i) The change in generation schedules and  
(ii) The change in the total cost of generation.

Q.3. Write short notes (any two)

- A. Methods for Reactive Power Control    B. LDC    C. Digital LF Controllers

Q4. Solve any Two

- A. Discuss the concept of SCADA. Explain architecture and subsystems of a simple SCADA.
- B. Explain SCADA function at national, regional, plant control room and substation control room.
- C. Explain substation automation and control.

Q5. Solve any Two

- A. Discuss the objectives of load forecasting.
- B. Discuss the concept of (a) Energy forecasting (b) Peak demand forecasting.
- C. Explain the input & output characteristics of thermal & hydro generating units