Hall Ticket Number :										

R-11 / R-13

Code: 1G263

III B.Tech. II Semester Supplementary Examinations October 2020

Power System Operation and Control

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) Discuss about the incremental fuel cost and production cost

   b) The fuel cost of two units are given by $C_1 = 0.1P^2_{G1} + 25P_{G1} + 1.6$ Rs/hr $C_2 = 0.1P^2_{G2} + 32\ P_{G2} + 2.1$ Rs/hr. If the total demand on the generators is 250MW, find the economical load distribution of the two units.

2. a) Draw the flowchart for optimal scheduling of generating units with and without losses.

   b) What are the B coefficients? Derive them.

3. a) Derive the condition for optimality of short term hydro thermal scheduling problem.

   b) Explain briefly about the thermal unit constraints in unit commitment.

4. a) Explain about non-reheat type of steam turbine and obtain the approximate linear model.

   b) Draw the block diagram of IEEE type-I excitation model and explain its functions.

5. a) Explain proportional plus integral control of single area system with neat block diagram. Derive necessary equations.

   b) Why it is necessary to maintain the frequency of the system to the constant.

6. a) Draw the block diagram of two area LFC with integral control loops.

   b) Deduce the expression for static error frequency and tie line power in an identical two area system.

7. a) Write short notes on passive shunt compensation.

   b) Discuss the specification of load compensation.

8. a) What do you understand by power system restructuring?

   b) Compare different types of compensating equipment for transmission systems.

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