

Y.M.C.A. UNIVERSITY OF SCIENCE AND TECHNOLOGY, FARIDABAD
M.TECH. (Power systems)- SEMESTER II EXAMINATION ,
POWER SYSTEM OPERATION AND CONTROL (EL-608 A)

Max Marks:-60

Time: 3hrs

- Note:- 1. Part-A is compulsory and attempt 4 Questions from Part-B.
 2. Assume relevant data/figure if found missing.

PART-A		
Q.1.a	What are the different constraints that can be placed on the Unit Commitment problem?	(2)
Q.1.b	Explain the significance of power pools.	(2)
Q.1.c	Why the steepest descent method is called the negative gradient method?	(2)
Q.1.d	How is the security control system defined?	(2)
Q.1.e	Explain the objectives and functions of AGC in power systems.	(2)
Q.1.f	Explain briefly the components /equipments of power system that can generate /or absorbs reactive power.	(2)
Q.1.g	What are the priorities for operation of modern power system?	(2)
Q.1.h	What is an optimal Power flow problem?	(2)
Q.1.i	Explain energy broker system	(2)
Q.1.j	Discuss the need of state estimation.	(2)
PART B		
Q.2.a	Explain the dynamic programming method with the help of flowchart in Unit Commitment.	(5)
Q.2.b	Describe Priority list method using full load average production cost.	(5)
Q.3.a	A system consists of two generating plants with fuel costs of $\frac{dC_1}{dP_{G1}} = 0.1P_{G1} + 20$ $\frac{dC_2}{dP_{G2}} = 0.15P_{G2} + 22.5$ The system operates on economic dispatch with $P_{G1} = P_{G2} = 100\text{MW}$ and $\frac{\partial P_L}{\partial G_2} = 0.2$. Find the penalty factor plant-1.	(5)
Q.3.b	Explain the hydro thermal coordination and its importance.	(5)
Q.4.a	Explain the various control for secure operations.	(5)
Q.4.b	Describe SCADA system for power system, its hardware components and its applications	(5)
Q.5.a	In weighted least square estimation (WLSE) what do mean by term "weighted"? Explain the WLSE method of state estimation in detail.	(5)
Q.5.b	Explain between static state estimation modes.	(5)
Q.6.a	Explain the concept of Economy interchange between interconnected utilities	(5)
Q.6.b	Write the algorithm for iterative solution of economic dispatch with losses coordinated.	(5)
Q.7	Write short note on (i) Contingency analysis (ii) Sensitivity factor	(10)