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Code No: B4909

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II SEMESTER EXAMINATIONS, APRIL/MAY-2012
POWER SYSTEM OPERATION AND CONTROL
(ELECTRICAL POWER ENGINEERING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks

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1.a) What are the constraints in unit commitment? Explain in brief.
b) Solve the following unit commitment problem using priority list method. Data for the three units is given below.

Unit No	Min (MW)	Max (MW)	H (MB ta/b)	Fuel Cost R/ MBtu
1	150	600	$510+7.2P_1 + 0.00142P_1^2$	1.1
2	100	400	$310+78.5P_2+0.00194P_2^2$	1.0
3	50	200	$78+7.97P_3 +0.00432P_3^2$	1.2

2. Discuss the dynamic programming method to solve unit commitment problem of a power system.

3. Discuss in detail the dynamic response of load frequency control of an isolated power system with a neat block diagram.

4. Show that steady state frequency error can be reduced to zero if the proportional and integral controller is used in single area load of frequency control.

5.a) What is area control error? What are the control strategies?
b) Draw the block diagram of load frequency control of 2 area control systems with gain blocks.

6. Derive an expression for steady state change of frequency and tie line power transfer of a two area power system.

7.a) Explain the Gradient search method of economic load dispatch.
b) Explain the various steps to be followed in thermal system dispatch with network losses considered.

8. Write short notes on the following
a) Optimal load frequency control
b) Interchange Evaluation with unit commitment
c) Power pools

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