Code No: 137FX

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, October/November - 2020
POWER SYSTEM OPERATION AND CONTROL
(Electrical and Electronics Engineering)

Time: 2 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks

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1. Develop the block diagram of the LFC of a single-area system. Explain in detail. [15]
2. Explain load frequency control and economic dispatch control. [15]
3. Derive an equation to relate voltage, power and reactive power at a node. [15]
4. a) Describe 'off-load' and 'on-load' tap-changing transformers.
   b) Explain the reason for variations of voltages in power systems and explain any one method to improve voltage profile. [7+8]
5. A power system consists of 2, 125 MW units whose input cost data are represented by the equations :
   $C_1 = 0.04\ P_1^2 + 22\ P_1^2 + 800$ Rupees/hour
   $C_2 = 0.045\ P_2^2 + 15\ P_2^2 + 1000$ Rupees/hour
   If the total received power $P_R = 200$ MW, determine the load sharing between units for most economic operation. [15]
6. Give various uses of general loss formula and state the assumptions made for calculating B_{mn} coefficients. [15]
7. Discuss about the dynamic programming method to solve unit commitment problem in power system. [15]
8. With a neat sketch, explain the hardware configuration of SCADA System. [15]

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