SEAT No. :

P3182

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B.E. (Electrical Engg.)
POWER SYSTEM OPERATION & CONTROL
(2012 Course) (Semester - I) (403141)

Time : 2½ Hours]   *[Max. Marks : 70*
Instructions to the candidates:
    1)   Answer five questions : Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
    2)   Neat diagrams must be drawn wherever necessary.
    3)   Figures to the right indicate full marks.
    4)   Assume suitable data if required.
    5)   Use of electronic nonprogrammable calculator is allowed.

Q1) a)   Compare the steady state, transient state and dynamic state stability with reference to type of disturbance, time of study and stability limit.   **[6]**

     b)   Explain the concept of swing curve in power system stability.   **[4]**

OR

Q2) a)   What are the problems in A.C. Transmission? How does the use of FACTS devices solve the problems.   **[5]**

     b)   What is Sub synchronous resonance? Explain its causes and effects.**[5]**

Q3) a)   Discuss the effect of change in excitation on the reactive power management.   **[5]**

     b)   With neat diagram, characteristics, explain the SVC (FC-TCR).   **[5]**

OR

Q4) a)   Differentiate the FACTS controllers on the basis of the type of connections.   **[5]**

     b)   Draw a loading capability curve of a synchronus generator and expalin reactive power generation and absorption by the unit.   **[5]**

Q5) a)   Draw and explain the proportional plus integral load frequency control of an isolated power system.   **[12]**

     b)   Discuss the speed governor system for a turbo generator.   **[6]**

OR

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Q6) a) Explain various constraints used in automatic generation control. **[6]**

b) Draw and explain the block diagram of two area load frequency control and sketch the response for tie line power and frequency deviation with respect to time. **[12]**

Q7) a) Discuss hydro constraints and thermal constraints used for unit commitment. **[8]**

b) Discuss economic load dispatch solution, in case of including generator limits and without including transmission losses. **[8]**

OR

Q8) a) Explain with example the priority list method used for Unit Commitment. **[8]**

b) Explain dynamic programming method of committing generating units. Also explain the advantages of dynamic programming method over priority list method. **[8]**

Q9) a) Explain economy interchanges evaluation between interconnected utilities. **[8]**

b) Explain the Reliability evaluation of Generation system with **[8]**

i) Generation Model

ii) Load Model and

iii) The Risk Model

OR

Q10) a) Explain with mathematical formula, the customer oriented and energy based Reliability indices. **[8]**

b) Write short notes on **[8]**

i) Power pools

ii) Energy banking

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