Total No. of Questions : 10]

SEAT No :

P 3065

[Total No. of Pages :2

[5154]-631
B.E.(Electrical)
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 and 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) Explain the solution of swing equation by point by point method. **[5]**

b) Explain the factors affecting the transient stability. **[5]**

OR

Q2) a) What is Sub synchronous resonance? Explain its causes and effects. **[5]**

b) Explain methods to analyze transient stability and steady state stability. **[5]**

Q3) a) What is the necessity of reactive power control? Explain the various sources reactive power. **[5]**

b) With neat diagram, explain the STATCOM. **[5]**

OR

Q4) a) Discuss any one type of FACTS controllers used for reactive power control. **[5]**

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

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

b) A 1000 MW, 50 Hz generator operating with load of 500 MW. If change in load is 1% for 1% change in frequency, find----

i) Power system gain Kps. ii) Power system time constant Tps.

Assume inertia constant of generator is 5 kJ/kVA. **[6]**

OR

P.T.O.

Q6) a) Explain with neat block diagram, explain load frequency control of Two Area Case. Also sketch the Frequency response. **[12]**

b) Define Automatic generation control, control area, area control error. **[6]**

Q7) a) Discuss hydro constraints and thermal constraints used for unit commitment. **[6]**

b) Discuss economic scheduling of thermal plant considering effect of transmission losses. **[10]**

OR

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

b) Explain the recursive function of dynamic programming for unit commitment task. **[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

OR

Q10)a) Explain the customer and energy based Reliability indices. Also enumerate the importance of power system reliability evaluation. **[8]**

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

i) Emergency power interchange.

ii) Energy banking.