

Total No. of Questions : 10]

SEAT No. :

P2287

[Total No. of Pages : 2

[5254]-621

B.E. (Electrical Engg.)

POWER SYSTEM OPERATION & CONTROL

(2012 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume suitable data, if necessary.*

Q1) Explain any three of following concepts,

[10]

- a) Equal area criterion
- b) Swing Equation
- c) Effect of clearing time on stability
- d) Critical clearing angle

OR

Q2) a) With neat connection diagram, explain any one shunt compensation scheme. **[5]**

b) Explain the generation of reactive power by a synchronous machine. **[5]**

Q3) With characteristics, explain any TWO of following :

[10]

- a) SVC
- b) TCSC
- c) STATCOM

OR

Q4) a) State the problems of AC transmission system. **[5]**

[5]

b) State the problems with Series Compensation. **[5]**

[5]

P.T.O.

Q5) a) Explain the advantage of adding integral control along with proportional control in case of load frequency control of single area case. Draw block diagram and frequency response. [8]

b) Explain the droop Characteristic of speed governor of generator. [8]

OR

Q6) a) With mathematical equation, explain Area Control Error of load frequency control of single area case and two area case. [6]

b) Write only mathematical equation and block diagram representation of following : [10]

i) Speed governor system

ii) Turbine model

iii) Generator-load model

Q7) Explain following concepts : [16]

a) Unit commitment and its necessity

b) Economic Load dispatch and its necessity

c) Objective function of Unit commitment and constrains

d) Objective function of economic load dispatch and constrains

OR

Q8) Explain with suitable numerical, following methods of Unit Commitment [16]

a) Priority list method

b) Dynamic programming

Q9) a) Explain the working of power pool. [9]

b) With Mathematical formula, explain the following Reliability indices [9]

i) SAIFI

ii) SAIDI

OR

Q10)a) Explain the condition, when Capacity interchange of power is applied?[9]

b) With Mathematical formula, explain the reliability indices evaluation for Parallel System. [9]

