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Question Paper Code : 31389

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Eighth Semester

Electrical and Electronics Engineering

EE 2036/ EE 809 — FLEXIBLE AC TRANSMISSION SYSTEMS

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the term IPFC.

2. What is meant by passive compensation?

3. Define the droop in VI characteristics of SVC.

4. Write the transfer function of SVC voltage regulator in gain time constant form.

5. State the need for variable series compensation.

6. What is blocked Thyristor mode in TCSC operation?

7. State the capabilities of STATCOM.

8. Specify the frequency ranges for electro mechanical oscillation.

9. Draw the UPFC model for power flow studies.

10. State the optimization problem of control coordination.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the concept and need for reactive power. (8)

(ii) Discuss the possible control actions to maintain the voltage at rated value in transmission line. (8)

Or

(b) Explain the effect of shunt and series compensation on power transmission capacity. (16)

12. (a) Draw and discuss in detail about the advantages of slope in dynamic characteristics of SVC. (16)

Or

(b) Explain the role of SVC in the enhancement of stability under sudden changes in the operating conditions of power system. (16)

13. (a) Explain the basic principle and different modes of operation in TCSC. (16)

Or

(b) Analyze the capability of TCSC in damping the oscillations of power system. (16)

14. (a) Explain the operating principle and VI characteristics of shunt switching converter. (16)

Or

(b) With neat phasor diagram analyze the conventional transmission capabilities of UPFC. (16)

15. (a) Discuss the control coordination of multiple controllers using linear control techniques. (16)

Or

(b) Discuss in detail about different factors for SVC-SVC interaction. (16)

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