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Question Paper Code : 71752

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Seventh Semester

Electrical and Electronics Engineering

EE 6004 — FLEXIBLE AC TRANSMISSION SYSTEMS

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the objectives of FACTS controllers?
2. Why shunt compensation is always attempted at midpoint of transmission line?
3. What are the advantages of slope in SVC dynamic characteristics?
4. Define effective short circuit ratio of SVC.
5. What is Bang-Bang control in TCSC?
6. What are the advantages of TCSC?
7. What is meant by SSR?
8. Mention the advantages of STATCOM.
9. What is meant by coordination of FACTS controllers?
10. Classify FACTS controller interactions.

PART B — (5 × 16 = 80 marks)

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

Or

- (b) Discuss the possible control action to maintain the voltage at rated value in transmission line. (16)
12. (a) Explain the influence of SVC on regulating AC system voltage for the following cases:
- (i) Coupling transformer ignored
- (ii) Coupling transformer considered. (16)

Or

- (b) Explain the role of SVC in the enhancement of transient stability under sudden change in the operating condition of power system. (16)
13. (a) What is basic principle of TCSC? What are the different modes of operation in TCSC? Explain them. (16)

Or

- (b) Analyze the capability of TCSC in damping the oscillation of power system and explain the role of TCSC in improvement of system stability limit. (16)
14. (a) Explain the operating characteristics and VI characteristics of STATCOM. (16)

Or

- (b) Explain the modeling procedure of SSSC in load flow and transient stability studies. (16)
15. (a) Discuss the control coordination of multiple controllers using linear control techniques for power flow control applications. (16)

Or

- (b) Investigate in detail about SVC-SVC controller interactions in a large power system. (16)