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Question Paper Code: 55007

Ph.D COURSE WORK EXAMINATION, MAY 2018

Elective

Course work

15PPE507 - POWER CONTROLLERS IN POWER SYSTEMS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Analyze the effects of uncompensated AC transmission line and the drawbacks of Passive reactive power compensation. CO1- Ana (20)

Or

- (b) Brief about the Flexible AC Transmission System in distributed System. CO1- Ana (20)

2. (a) Explain the working principle and operating characteristics of SVC in detail. CO2-U (20)

Or

- (b) Explain how the SVC will be able to regulate the HVAC bus voltage. Derive the V-I characteristics of power system and SVC(FC+TCR). CO2-U (20)

3. (a) (i) Classify various modes of operation of TCSC. CO3- U (12)
(ii) Discuss the advantages of TCSC in detail. CO3- U (8)

Or

- (b) (i) Describe the variable reactance model of TCSC with block diagram. CO3- U (12)

- (ii) Briefly describe the steps to be followed for SSR mitigation by TCSC. CO3- U (8)

4. (a) (i) Explain the principle of operation and applications of STATCOM. CO4- U (10)
- (ii) Explain the power exchange process between STATCOM and power system. CO4- U (10)

Or

- (b) (i) Explain the principle of operation of SSSC and series compensation using SSSC with necessary diagrams and expressions. CO4- U (12)
- (ii) Give the functional control scheme for a SSSC. CO4- U (8)
5. (a) Elucidate the need for SVC- SVC interaction. CO5-U (20)

Or

- (b) Explain various control techniques for coordination of Active controllers. CO5-U (20)
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