Register Number: ……

M.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

POWER ELECTRONICS AND DRIVES

PED 555: Flexible AC Transmission Systems

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. State the Stability constraint of maximum transmission loading.
2. What is meant by Uncompensated lines?
3. What is the objective of the series compensation?
4. Explain the term TSSC switching.
5. Draw the circuit diagram of a TSC based shunt compensator.
6. Expand the term FCTCR.
7. Where the IPFC provides real power compensation?
8. What are the emerging Facts controllers?
9. At what frequency will Sub Synchronous Resonance occurs at a frequency for a 50 Hz system.
10. What is the another name for TCBR.

PART B (5 x 16 = 80 Marks)

21. a) Explain the need for Transmission interconnections and about the opportunities of FACTS. (8)

    b) With derivation explain the stability constraint of maximum transmission line loading. (8)

(OR)

a) What are the limitations imposed on the loading capability of a transmission system.(8)

b) What is reactive power and briefly describe the relative importance of reactive power compensation in power system. (8)

22. a)(i) Discuss briefly about the variation of the TCSC reactance with the firing angle α.(8)

    (ii) Explain the V-I capability characteristics for a single module TCSC. (8)

(OR)

b) With neat diagram explain the working of TCSC. How TCSC differs from working of TSSC?

23. a) Write about the objectives of shunt compensation. Also briefly explain the various methods of Shunt compensation techniques.

(OR)

a. Describe the power transfer capability of UPFC with block diagram and its characteristic with relevant phasor diagram.

24. a) Discuss how power is managed by an IPFC in a multilines substation.

(OR)

b) Describe the power transfer capability of UPFC with block diagram and its characteristic with relevant phasor diagram.

25. a) What is sub synchronous resonance? How is it mitigated by a NGH-SSR damper?

(OR)

b) (i) Explain how a Thyristor controlled voltage limiter operates with relevant diagrams. (8)

(ii)Discuss briefly about the approaches to the Thyristor controlled voltage Regulators. (8)

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