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M.TECH

Total Number of Pages :1

M.TECH 1ST SEMESTER SUPPLE EXAMINATIONS, DECEMBER 2018

FLEXIBLE AC TRANSMISSION SYSTEMS

Branch: PE, Subject Code:MPEPE1054

(Regulations 2017)

Time: 3 Hours

Max Marks : 70

Question Code: SD18002078

PART-A (10 X 2=20 Marks)

1. Answer the following questions.

- How is the reactive power controlled, using FACTS devices?
- Why there is a need of interconnection in electrical power systems?
- How power flow takes place in parallel electrical systems?
- Define Sub synchronous resonance.
- What is the need of using power electronics based regulators?
- Give the block diagram for a basic IPFC control scheme.
- State objective of series compensation.
- How GCSC & TCR are duals of each other.
- State the objectives of voltage and phase angle regulators.
- What are the needs for providing compensation?

PART-B (5 X 10=50 Marks)

Answer any five questions from the following.

- Discuss the modeling of TCSC for load flow study with a neat block diagram. [5]
 - Explain the co-ordination of multiple controllers using linear control techniques [5]
- Apply the modeling of SSSC for power flow studies. [5]
 - What are the main advantages of FACTS controllers? Also list and explain different types of FACTS controllers. [5]
- Explain with a neat sketch and waveforms the GCSC type of series controller [5]
 - Explain the basic concept of voltage regulator with the help of a phasor diagram [5]
- What are the advantages of three-phase converters over single-phase converters? [5]
 - Explain the operation-I characteristics, diagram and loss characteristics of TSC . [5]
- Describe the effect of shunt compensation at mid-point of the line [5]
 - Explain the basic concept of voltage regulator with the help of a phasor diagram [5]
- Explain the transient stability enhancement and power oscillation damping of SMIB system with SVC. [5]
 - Explain the operation of variable impedance type static var generators [5]
- Write Short notes on
 - operation of IPFC [5]
 - V-I characteristics of TSR & TCR [5]