

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

M.Tech I Year I Semester Regular Examinations Jan 2020

STATIC VAR CONTROLLERS AND HARMONIC FILTERING

(Power Electronics)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Explain the necessity of reactive shunt compensation in transmission system. 6M
Explain the objectives of shunt compensation?
b What is the necessity of reactive power controllers? 6M

OR

- 2 a Explain about power quality problems in detail? 6M
b What are the Sources of Harmonics in Distribution Systems? 6M

UNIT-II

- 3 a Explain the concept of series capacitive compensation? 6M
b Write short notes on Thyristor controlled series capacitor. 6M

OR

- 4 a Explain the enhancement of transient stability by the SVC and STATCOM. 6M
b Explain about Sub-Synchronous Resonance and damping. 6M

UNIT-III

- 5 a Explain the transformer connection for 12- pulse operation. 6M
b Explain about GTO inverters. 6M

OR

- 6 a Explain the operation of three phase full-wave bridge converter with neat circuit? 6M
b i. Write a short note on three level voltage source converters. 6M
ii. Compare between VSC and CSC.

UNIT-IV

- 7 a Explain Single Phase Shunt Current Injection Type Filter and its Control. 6M
b Explain Dynamic Voltage Restorer and its control. 6M

OR

- 8 a Explain Hybrid Filtering using Shunt Active Filters. 6M
b Explain Harmonic Current Calculator Single Phase Shunt Current Injection Type Filter. 6M

UNIT-V

- 9 a Explain about Series Active Filtering in Harmonic Isolation mode. 6M
b Explain the Series APF in Harmonic cancellation mode. 6M

OR

- 10 a Explain the various filters for power quality improvement. 6M
b Explain the Series APF in Harmonic isolation mode. 6M

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