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Question Paper Code : 42491

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Eighth Semester

Electrical and Electronics Engineering

EE 2036 – FLEXIBLE AC TRANSMISSION SYSTEMS

(Regulations 2008)

(Common to PTEE 2036 – Flexible AC Transmission Systems for B.E.

(Part-Time) Seventh Semester – EEE – Regulations 2009)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. How is reactive power controlled in an electrical network ?
2. What are the objectives of FACTS ?
3. Draw the block diagram of SVC voltage regulator in Integrated Current droop form.
4. Draw the power angle curve of SMIB system with midpoint SVC.
5. Mention the disadvantages of fixed series compensation of transmission lines.
6. What are the functions of damping control of a TCSC ?
7. State the capabilities of STATCOM.
8. Specify the frequency ranges for electro mechanical oscillation.
9. Draw the control characteristics of SVC.
10. Draw the Power Angle Curve of SVC.

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PART - B

(5×16=80 Marks)

11. a) i) Give the complete analysis of lossless distributed parameter transmission lines and derive power equations for symmetrical case. (12)
ii) Write a brief note on IPFC. (4)
(OR)
- b) i) What are the objectives of line compensation? Explain the effect of shunt and series compensation on power transmission capacity of a short symmetrical transmission line. (12)
ii) List the advantages of SVCs. (4)
12. a) Discuss the advantage of the slope in SVC dynamic characteristics in detail. (16)
(OR)
- b) Explain how transient stability is enhanced due to static var compensator. (16)
13. a) Explain the operation of TCSC with neat sketches. (16)
(OR)
- b) Derive the expression of TCSC for the time interval $(-\beta \leq \omega t \leq \beta)$. (16)
14. a) Explain the operating principle and VI characteristics of shunt switching converter with suitable diagrams. (16)
(OR)
- b) With neat phasor diagram, analyze the conventional transmission capabilities of UPFC. (16)
15. a) Discuss about the different classification of controller interactions. (16)
(OR)
- b) Analyze in detail about SVC-SVC interaction. (16)