R09

Code: 9A02702

B.Tech IV Year I Semester (R09) Regular & Supplementary Examinations December 2015

FUNDAMENTALS OF HVDC & FACTS DEVICES

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 Explain in detail about different types of HVDC links available with the help of neat sketches.

2 (a) Explain the constant extinction angle control with a neat block diagram.
(b) Explain clearly the procedure for start up of a DC link.

3 (a) Discuss how shunt capacitors can be used to meet reactive power requirement of a converter.
(b) Discuss about characteristic and non-characteristic harmonics generated in HVDC systems.

4 (a) Derive the mathematical model of a HVDC converter.
(b) Explain the sequential method for AC-DC power flow.

5 Explain the basic types of the FACTS controllers and their applications.

6 Explain how the shunt compensation is useful in prevention of voltage instability and improvement of transient stability.

7 Explain the basic control schemes for GSC, TSSC and TCSC using block diagrams.

8 (a) Draw and explain the overall control structure of UPFC.
(b) Explain the basic control scheme for P and Q control by UPFC.

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