EEE IV/II

R09

Code No: 58008

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, May - 2016
HVDC TRANSMISSION
(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks

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1. With neat sketches explain the different kinds of D.C. links available and list out merits and demerits of each type. [15]

2.a) Explain the characteristics of 12 Pulse converter.
b) What is meant by firing angle delay and commutation delay? Draw the wave forms for voltage and current in a 6-pulse Graetz circuit with $\alpha=30^0$, $\mu=15^0$. [7+8]

3.a) Discuss in detail the effect of source inductance on HVDC systems.
b) Draw and explain a block diagram of a Hierarchical level of control of HVDC transmission system. [7+8]

4.a) Explain the reactive power requirements in steady state of HVDC systems.
b) With analysis justify the need to modify the reactive power characteristics of a HVDC converter station. [7+8]

5.a) Compare simultaneous and sequential methods of power flow analysis.
b) Classify the solution methodology for AC-DC load flow and explain. [8+7]

6. Discuss the various faults exist in converter protection. Explain the suppression methods. [15]

7.a) What are the different types of considerable harmonics generated by converter station? Explain in detail.
b) What do you understand by characteristics harmonics in HVDC system? Using Fourier analysis, obtain equation for primary current of transformers connected to 12-pulse converter. [7+8]

8. What are the various types of filters that are employed in HVDC converter stations? Explain them in detail. [15]

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