

**M. Tech 1st Semester (Electrical Power System)****Examination, May–2015****HVDC TRANSMISSION****Paper–MTEPS–102***Time allowed : 3 hours]**[Maximum marks : 100**Note : Attempt any five among all questions.*

1. (a) Explain the comparison of AC & DC transmission in detail.  
(b) With neat sketches explain the different kinds of dc Link available.
2. For a 3-phase 6 pulse Gratez's circuit, draw the tuning diagram considering overlap angle is less than  $60^\circ$  and without overlap for the following :
  - (a) Voltage across load
  - (b) Voltage across any two pair of conductor values.
3. What are the filter configurations that are employed for HVDC converter station ? Give design aspect of one such filter.
4. It is required to eliminate harmonics of order 10 and below 10 other than fundamental in a 12-pulse converter suggest and derive an equation.

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5. (a) Explain over voltage due to DC and AC side.  
Give faults. 10
- (b) Write a short note on converter protection. 10
6. Explain the technological development in control and protection, for better performance and reliability of dc transmission system. 20
7. (a) Write a short note on harmonic distortion. 10
- (b) Explain in detail about planning of hvdc transmission. 10
8. Explain the analysis of 12 pulse converter with bridge and rectifier. 20