

(b) Over voltages due to DC and AC side line faults.

8. (a) Explain surge arresters with neat sketch.

(b) What are the causes of over voltages in converter station?  
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Roll No. ....

**23258**

**M.Tech. 1st Semester (Electrical  
Power Systems) Examination-  
December, 2016**

**HVDC TRANSMISSION**

**Paper : MTEPS-102**

***Time : 3 hours***

***Max. Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

**Note :** Attempt **five** questions out of eight questions. All questions carry equal marks.

1. (a) Explain comparison between AC and DC Transmission.

- (b) Discuss Power Handling Capabilities of HVDC lines.
2. (a) Explain Choice of converter configuration for any Pulse number.
- (b) Discuss special features of converter Transformer.
3. (a) What is the significance of harmonics in HVDC system ? Discuss harmonic elimination.
- (b) Explain Designing of AC filters.
4. (a) With circuit diagram, explain the Principle of operation of firing angle control scheme.

- (b) Explain DC Power flow control with neat sketch.

5. (a) Explain basic principles of Power modulation.
- (b) Describe classification of Power system stability.
6. What do you mean by multi terminal DC system ? What are the different types of MTDC system ? Explain each type of MTDC system with relevant schematic diagram.
7. Write Technical note on :
- (a) Transient over voltages in HVDC systems