

(b) Over voltages 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.

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

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(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