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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) (2011 Onwards E-III)/
(Electrical & Electronics) (2011 & 2012 Batch E-III)
(Sem.–7,8)

HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

Subject Code : BTEE-805B
Paper ID : [A3042]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. Define the DC breakers.

b. Why high level controllers are used in HVDC system control?

c. Define the smoothing reactors in DC line.

d. Write any four advantages of HVDC transmission.

e. How monopolar operation of DC line occurs?

f. Write any two objectives of telecommunication requirement in HVDC control system.

g. Define the thyristor valve.

h. Define the transient over voltage in DC line.

i. Define the pulse number in HVDC.

j. Write any four differences between DC and AC networks.

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SECTION-B

2. Explain five limitations of HVDC transmission system.

3. Explain the term extinction angle and its significance in inverter control.

4. What is surge diverter? Explain its function as shunt protective devices.

5. Draw and explain the configuration of back-to-back HVDC converter station.

6. How the modeling of DC network is done? Explain with one example.

SECTION-C

7. Sketch and explain the configuration of a 12-pulse bridge converter indicating the connections of two 3-phase transformer.

8. A bipolar two terminal HVDC link is delivering 1000 MW at ± 500 Kv at the receiving end. Total losses in DC circuit are 60 MW. Calculate the following :

   a. Sending end power

   b. Power in the middle of the line

   c. Sending end voltage

   d. Total resistance of DC circuit

9. Write short notes on :

   a. Rod gaps used as protective devices.

   b. Ground wires for protection of overhead lines.

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