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Total No. of Pages : 02

Total No. of Questions : 09

# B.Tech.(EE) (2012 Onwards E-III) (Sem.-7,8) HIGH VOLTAGE DIRECT CURRENT TRANSMISSION Subject Code : BTEE-805B M.Code : 71943

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. Write the EMI effect on HVDC link.
  - b. Draw the converter characteristics of a HVDC link.
  - c. What is the necessity of higher level controller for HVDC link?
  - d. What is the use of tap changing transformer in HVDC?
  - e. Mention the basic requirement of control philosophy adopted in HVDC system.
  - f. What are the higher level controllers?
  - g. What is meant by multi terminal DC link?
  - h. How will you overcome the disadvantages in dc transmission?
  - i. Draw the diagram of Graetz bridge circuit.
  - j. How will you protect against DC line faults?



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#### **SECTION-B**

- 2. Derive the mathematical model of a DC converter.
- 3. What are the basic principles of over current protection?
- 4. Explain the effect of overlap angle on the performance of converter circuit.
- 5. Obtain the equivalent circuit for rectifier operation of Graetz circuit.
- 6. Explain the effect of firing angle errors and unbalanced voltages on the generation of harmonics.

#### **SECTION-C**

- 7. Discuss in detail the effect of source inductance on HVDC systems.
- 8. What are the different applications of D.C. transmission system? Explain them in detail.
- 9. Write note on :
  - a Characteristics of a twelve-pulse converter
  - b. Configuration and planning for HVDC transmission.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.