

Roll No.

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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electrical & Electronics Engg.) (2013 & Onwards E-II)
(Sem.-7)

HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

Subject Code : BTEEE-804B

M.Code : 71964

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a. What do you mean by monopolar link in HVDC system?
- b. Write **any two** limitations of HVDC system.
- c. Write one semiconductor switching device used for line frequency and high power application.
- d. What are the advantages of high voltage AC transmission?
- e. Why HVDC line do not require any reactive power compensation?
- f. Why dc transmission is economical and preferable over ac transmission for large distances only?
- g. Why Corona loss is lesser in DC than in AC line?
- h. *"Power loss in AC line is more compared to DC line"*. Explain
- i. What are the factors to be considered for planning of HVDC transmission?
- j. Explain the major components of a HVDC transmission in converter station unit.

SECTION-B

2. Explain the use of surge arresters in transmission lines.
3. Explain the proximity effect in case of AC transmission lines.
4. Explain the working of a three phase six pulse converter with a resistive load.
5. Compare HVDC and HVAC transmission system.
6. How the current and extinction angle is controlled in a Converter?

SECTION-C

7. *“A 12 pulse converter has better rectification efficiency than a three phase six pulse converter”*. Justify the statement with suitable circuit diagram and waveform.
8. Explain the reason of using smoothing reactors in HVDC system. Give suitable circuit diagram and mathematical expressions to justify that the harmonics are reduced in the DC circuit by the reactor.
9. What are the different possible faults in HVDC transmission systems? Explain **any one** technique to protect the high power converters from over currents.

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.