Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (EE) (2012 Onwards E-III) (Sem.–7)

HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

Subject Code : BTEE-805B

M.Code : 71943

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

Write briefly :

1. Differentiate the AC and DC transmission system.
2. Enlist any two applications of HVDC transmission system.
3. Draw the circuit diagrams of different type of DC links.
4. State briefly the process of starting and stopping of DC links during operation.
5. What are the surge arresters?
6. What is the effect of proximity of AC and DC transmission lines?
7. What are the two measures of reliability of HVDC system?
8. "*Increase in voltage level is always feasible or not*". Give you comment.
9. Draw the distance verses cost graph of AC and DC transmission system.
10. What is selective harmonic elimination in HVDC system?

SECTION-B

11. How will you select the converter configuration of HVDC system? What is the effect of proximity of AC and DC transmission lines?

12. Why reactive power requirement is high in DC system? What is the effect of firing angle over the power factor angle of the system?

13. Describe the modeling of AC and DC networks. Explain the planning and recent development in HVDC system in details.

14. Explain the principle of DC link control. Draw the equations for DC current in HVDC link.

15. What are modern trends in HVDC transmission system? Explain any three with suitable example.

SECTION-C

16. Analyze the 3-phase converter circuit with 6-pulses. Find the effective communication resistance of a 6-pulse rectifier, which is fed from 400kV, 3-phase AC voltage, when the DC current in HVDC link is 3kA and the rectifier DC voltage is 500kV at firing angle of 15°.

17. Describe the converter bridge characteristics. Explain the working of 12-pulse voltage source converter with and without overlap, in detail.

18. What is the insulation coordination and smoothing reactor? Explain the protection against over current and over voltage in a converter station.

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.