

CBCS SCHEME

16/17EPS41



Fourth Semester M.Tech. Degree Examination, Aug./Sept.2020 HVDC Power Transmission

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With the neat block diagram, explain the control of HVDC system. (08 Marks)
b. Mention the characteristics and economic aspects of HVDC system and explain them Briefly. (08 Marks)

OR

- 2 a. Explain the operation of 3- ϕ bridge converter with the neat circuit diagram and waveforms. (08 Marks)
b. With the neat circuit diagram and waveform, explain the operation of 12-pulse series connected bridge converter. List out the application of the HVDC power transmission. (08 Marks)

Module-2

- 3 a. Explain :
i) Shunt active filter
ii) Series active filters with respect to HVDC system. (08 Marks)
b. With the neat block diagram, explain the operation of Lindome converter station. (08 Marks)

OR

- 4 a. With the neat block diagram, explain phase – locked and pulse period control of an HVDC system. (08 Marks)
b. Write a short note on :
i) Commutation failure in 3 – phase ground fault
ii) Commutation failure in 1 – phase to ground fault. (08 Marks)

Module-3

- 5 a. With the neat control system block diagram, explain the operation of conventional HVDC Sidney converter station. (08 Marks)
b. With the neat sketch, explain the relation between reactive power and active power consumption in Cheju HVDC system. (08 Marks)

OR

- 6 a. Explain HVDC scheme for self excitation of a generator with a relevant diagrams. (08 Marks)
b. Explain with the neat diagram, interaction between HVDC and HVDC system. (08 Marks)

Module-4

- 7 a. Explain the operation of Cheju HVDC system with a neat single line diagram. (08 Marks)
b. Mention different types of HVDC cables and explain each in brief. (08 Marks)

OR

- 8 a. With the neat sketch, explain the operation of Zero-flux current transducer. (08 Marks)
b. Explain the operation of optical transformer with the neat diagram. (08 Marks)

Module-5

- 9 a. With the neat block diagram, explain the configuration of Cheju – Haenam HVDC value. (08 Marks)
b. With the neat block diagram, explain the voltage source converter HVDC system. (08 Marks)

OR

- 10 a. With the neat single line diagram, explain the operation of HVDC system in offshore application. (08 Marks)
b. With the neat block diagram, explain the vector controlling scheme of DFIG. (08 Marks)

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