

Reg. No: 

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**BTECH IV Year I Semester Regular Examinations Nov/Dec 2019**

**HVDC Transmission Systems**  
**(Electrical & Electronics Engineering)**

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a List out the differences between HVDC and HVAC transmission systems 6M  
b Explain briefly about different types of HVDC links? 6M

**OR**

- 2 a Discuss economic aspects of HVDC system compared with HVAC. 6M  
b Explain the principles of static conversion and briefly explain static converter configuration. 6M

**UNIT-II**

- 3 a Draw the schematic circuit diagram of a 6 pulse Graetz circuit and explain its principle of operation. Explain the individual characteristics of a rectifier and inverter with neat sketches. 6M  
b Explain the static converter configuration of a HVDC system. 6M

**OR**

- 4 a Explain the operation of a 12 pulse converter with a neat circuit diagram. 6M  
b With neat sketches, describe the individual characteristics of a converter bridge when operating as a i) rectifier and ii) inverter. 6M

**UNIT-III**

- 5 a Explain the DC Power flow control of HVDC system. 6M  
b Explain the constant ignition angle control and constant current control. 6M

**OR**

- 6 Explain how the harmonics elimination in a HVDC Transmission system? 12M

**UNIT-IV**

- 7 a What are the different types of filters used on the AC side of HVDC system? How they are arranged? 8M  
b Give the design aspects of single tuned filter. 4M

**OR**

- 8 a Explain about Harmonics Elimination and Suppression Methods. 6M  
b Describe how a double tuned filter can be designed for a HVDC system? 6M

**UNIT-V**

- 9 a Briefly explain over current protection scheme in the HVDC system. 6M  
b Explain the elimination of Harmonics in detail. 6M

**OR**

- 10 a What are the over voltages due to disturbances on AC system side ? 6M  
b Write a short notes on the following. 6M  
(i) Over current protection (ii) Surge arresters.

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