

(3 Hours)

[Total Marks: 80]

N.B.

- :**
- (1) Question No.1 is compulsory
 - (2) Attempt any three from the remaining
 - (3) Figures to the right indicate full marks
 - (4) Assume suitable data if necessary

- 1** Solve any four :- **20**
 - (a) What are the main components of HVDC transmission?
 - (b) What is current margin?
 - (c) State the consequences of harmonics in HVDC.
 - (d) Explain the necessity of DC regulator in HVDC system.
 - (e) Draw the equivalent circuit of HVDC line.

- 2** (a) Explain commutation failure with diagram and waveform **10**
 - (b) Draw and explain the operation of a 6 pulse converter with overlap angle less than 60° **10**

- 3** (a) Explain ground return in HVDC. **10**
 - (b) Explain different types of faults in HVDC link. **10**

- 4** (a) Explain over voltage and over currents protection in HVDC **10**
 - (b) Explain basic control characteristics of HVDC **10**

- 5** (a) Explain two methods of Individual Phase control **10**
 - (b) Compare AC transmission and HVDC transmission **10**

- 6** (a) Explain the filters in HVDC. **10**
 - (b) Give the equivalent circuit of a 12 pulse converter, What are the different condition modes? **10**
