

Marks: 100

Time: 3 Hrs

- Note:** 1. Question no. 1 is compulsory.  
 2. Attempt any four questions out of remaining.  
 3. Assume suitable data if necessary.

- Q1. a. Draw and Explain equivalent circuit of 3-phase full wave HVDC bridge converter [5]  
 b. What is mode stabilization? [5]  
 c. Give the importance of Bypass Valve in HVDC system [5]  
 d. Explain current margin. [5]
- Q2. a. Give comparison between HVDC and HVAC transmission system. [10]  
 b. Derive the expression for DC voltage and voltage drop due to overlap and hence generate equivalent circuit of bridge rectifier. [10]
- Q3. a. Explain with neat diagram different types of HVDC links. [10]  
 b. Explain control characteristics of HVDC converters. [10]
- Q4. a. Explain the different types of faults in HVDC. [10]  
 b. Prove that delay angle is the power factor angle for a controlled rectifier. [10]
- Q5. a. Explain the hierarchical control of HVDC system. [10]  
 b. What are the causes and effects of harmonics on HVDC? [10]
- Q6. a. Explain starting and stopping of HVDC system. [10]  
 b. Explain commutation failure in converters. [10]
- Q7. Write note on any two: [20]  
 a. Recent trends in HVDC  
 b. Need of reactive power compensation in HVDC  
 c. Ground return: advantages and disadvantages

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